CHAPTER II
REVIEW OF RELATED LITERATURE
A capsule survey of the history of efforts to cultivate the abilities of gifted and talented children around the world might include the following:

In ancient Sparta, military skills were so exclusively valued that all boys beginning at age seven received schooling and training in the arts of combat and warfare. Giftedness was defined in terms of fighting skills and leadership. According to Meyer (1965), the process of selecting candidates for military education took place at birth—babies with physical defects or who were otherwise of questionable value were rejected.

In Athens, upper-class free Greeks sent their boys (not girls) to private schools that taught reading, writing, arithmetic, history, literature, the arts, and physical fitness (Warmington, 1961). Higher education also was restricted to the upper crust. Sophists (professional teachers) were hired to teach young men mathematics, logic, rhetoric, politics, grammar, general culture and "disputation". Apparently, only Plato's Academy charged no fees and selected both young men and women based on intelligence and physical stamina, not social position (Davis and Rimm, 1989).

Across the Adriatic Sea, Roman education emphasized architecture, engineering, law and administration. With more liberal attitudes, both boys and girls attended first level (elementary) schools and some girls attended second level (grammar) schools, but higher education was not permitted for females (Davis and Rimm, 1989). According to Good (1960), Rome valued mother and family, and some gifted women emerged who greatly affected Roman society, for example, Cornelia, Roman matron and famous mother of statesman Gaius and Tiberius Gracchus.
The Renaissance period in Europe (1300-1700) produced remarkable art, architecture, and literature. Strong and wealthy governments rewarded their creatively gifted with wealth and honour. Such aesthetically able persons as Michel Angeló, da Vinci, Boccacio, Bernini and Dante were sought out and supported well (Davis and Rimm, 1989).

Moving back to a thousand years, early China, beginning with the Tang Dynasty in A.D 618, placed high value on gifted children and youth. For example, child prodigies were sent to the imperial court where their gifts were recognized and cultivated. According to Tsuin-Chen (1961), China historically anticipated four principles of modern gifted (talented education). First, they embraced a multiple-talent concept of giftedness. They valued literary ability, leadership, imagination, and originality, and such intellectual and perceptual abilities as reading speed, memory capacity, reasoning and perceptual sensitivity. A second interesting notion was their recognition of (a) apparently precocious youth who grow up to be average adults, (b) seemingly average youth whose gifts emerge later, and (c) true child prodigies whose gifts and talents are apparent throughout their lives. Third, the early Chinese recognized that abilities of even the most gifted children would not fully develop without special training. Support was considered especially important because of the belief that these children were weak and unhealthy and would not live long. Finally, a fourth notion, attributed to Confucius about 500 B.C. was his nail on the head belief that while education should be available to children of all social classes, they should be educated differently according to their abilities.
In Japan, during the Tokugawa Society period (1604-1868), schools of each clan tracked children of Japanese Samurai differently than children of commoners (Anderson, 1975). Children of Samurai nobility received training in Confucian classics, martial arts, history, composition, calligraphy, moral values and etiquette. Poor village children were taught value of loyalty, obedience, humility, and diligence. However, a few individual scholars established private academies for the intellectually gifted, including children of both Samurai and Commoners.

In India, during the period from 320 A.D. to 480 A.D. which is known as the 'Golden Age', unprecedented achievements were made in the fields of Science, Art, Architecture, religion and literature.

Many great poets, dramatists, grammarians and scholars lived during that period. The chief among them were Kalidasa, Vashakhadatta, Shudraka, Harisena, Bharavi, Bhasa, Dandin, Panini, Patanjali and Amar Singh. In the field of medicine, Vagubhatta was the most distinguished physician. The greatest mathematicians and astronomers were Aryabhatta, Varahamihira and Brahmagupta. As in the fields of science and literature, so in the field of art, Gupta period reached a high level of excellence. Remarkable progress was made in painting, mettalurgy and music. The Vishnu temple at Deogarh and the paintings at the Ajanta and Bagh caves are the specimen of Gupta architecture and the paintings respectively. The Iron Pillar at Delhi reveals the metallurgical skill of the Gupta artists.

The Gupta period was able to reach a high level of excellence because all the Gupta emperors patronised art, architecture, literature and science. People with outstanding talents and scholars were sought out by the kings and rulers. To encourage them, liberal grants were given for their education.
Further, higher education was imparted in such Universities as Nalanda, Taxila, Vikramashila and Vallabhi. They were the abode of famous teachers who specialised in medicine, surgery, astronomy, astrology, painting, sculpture, archery, etc. They attracted many students from the country and in the case of Nalanda University, even Chinese scholars like Hieun Tsang and I-Tsing studied in the University. For the progress and contributions made by such people, kings, rulers and even merchants and traders were interested that the universities were maintained mainly by the funds donated by them(Kundra, 1992).

In early America, concerns for the education of gifted and talented children was not great. According to Newland (1976) some educated youth were accommodated in the sense that attending secondary school and college was based both on academic achievement and the ability to pay the fees.

With compulsory attendance laws, schooling became available to all, but few provisions existed for gifted children. As noteworthy exceptions, some schools in Elizabeth, New Jersey, began tracking gifted and slow learners in 1866; St. Louis initiated tracking in 1871. Special classes for gifted children were initiated at Los Angeles and Cincinnati in 1916; Urbana, Illinois, in 1919, and Manhattan and Cleveland in 1922.

2:02 GROWING INTEREST IN THE DEVELOPMENT OF GIFTED CHILD MOVEMENT

Recent history underlying and influencing today's strong interest in the gifted and talented is not a long one. The following are the main contributions:
HEREDITARY GENIUS: FRANCIS GALTON

The English Scientist, Francis Galton (1822-1911), is credited with the earliest significant research and writing devoted to intelligence (or genius) and intelligence testing. Galton believed that intelligence was related to the keenness of one's senses, for example, vision, audition, smell, touch, and reaction time. His efforts to measure intelligence, therefore, involved such tests as those of visual and auditory acuity, tactile sensitivity, and reaction time. Galton further concluded that one's intelligence is highly determined by heredity. This hereditary basis of intelligence seemed to be confirmed by his observations as reported in his most famous book, Hereditary Genius (Davis and Rimm, 1989).

Galton's emphasis on high heritability of intelligence is today shared by some psychologists. Gage and Berliner (1984), for example, drawing upon Jensen's (1969) twin studies, estimated that intelligence is 80 percent inherited and 20 percent due to environment.

B. ROOTS OF MODERN INTELLIGENCE TESTS: ALFRED BINET

Modern intelligence tests have their roots in France in the 1890's (Davis and Rimm, 1989). Alfred Binet, aided by T. Simon, was hired by government officials in Paris to devise a test to identify which children would not benefit from regular classes and therefore, would be placed in special classes to receive special training. To be able to do this, he developed a number of simple tests meant for measuring the intelligence of the children of each age level and applied these to them. Binet was also successful in standardizing the tests.
C. LEWIS TERMAN: THE STANDFORD BINET TEST, HIS GIFTED CHILDREN STUDIES

Stanford psychologist Lewis Terman made two historically significant contributions to gifted children. First, Terman supervised the modification and Americanization of the Binet Simon Tests, and the Stanford-Binet Intelligence Scale. The test was revised in 1937, 1960 and again in 1986.

Terman's second contribution was his identification and long study of 1,500 gifted children - 800 boys and 700 girls. These people were, and still are, the most studied group of gifted individuals in the world (Davis and Rimm, 1989).

D. LETA HOLLINGWORTH: "NURTURANT MOTHER" OF GIFTED EDUCATION

According to Stanley (1978), Galton was the grandfather of the gifted child movement, Binet the midwife, Terman the father, and Columbia University's Leta Hollingworth the nurturant mother. Her pioneering contributions to gifted education consisted of personal efforts supporting gifted education and gifted students in the New York City Area until her death in 1939 and the publication of two books, Gifted Children: Their Nature and Nurture and Children Above 180 IQ Stanford Binet: Origin and Development.

E. SPUTNIK

The America's last significant historical event to predate the 1970's resurgence of interest in gifted education is the launching in 1957 of the Russian Satellite Sputnik. The launching of the Sputnik was a glaring and shocking technological defeat since Russia's scientific minds had outperformed the Americans (Tannenbaum, 1979).
Tannenbaum (1979) referred to the aftermath of Sputnik as a total talent mobilization. As such academic course work was telescoped (condensed) for bright students, college courses were offered in high school; foreign languages were taught in elementary schools. Public and private funds were earmarked for training in science and technology. Acceleration and ability grouping were used, and efforts were made to identify gifted and talented minority students. New maths and science curricula were developed, most notably the School Mathematics Study Groups(SMSG) maths, Physical Science Study Committee(PSSC) physics, and Biological Science Curriculum Study (BSCS) biology. In High School, there was a new awareness of and concern for high scholastic standard and career mindedness. The bright and talented students were expected to take the tough courses, to fulfill their potential, and submit their developed abilities for service to the nation.

Unfortunately, both the scare of the Sputnik and the keen interest in educating gifted and talented students were off in about five years. The awareness and concern was rekindled in the mid 1970's. Many teachers and administrators nationwide and across Canada are becoming committed to gifted education. Researchers and materials writers are developing tests, publishing articles in new journals, and writing new materials for teaching creativity, thinking skills, computing, maths, science and writing. The movement is not uniquely North American. The July/Aug. 1985, and July/Aug. 1987, issues of Gifted Child Today focussed on "Gifted Education around the world", with articles describing Gifted/Talented activities in mainland China, Hongkong, Manila, South Africa, Egypt, Saudi Arabia, India, Australia, Mexico, Dominican Republic, Guam, Brazil, Russia.
and Australia (Davis and Rimm, 1989)

F. SITUATION IN INDIA

India, as a democratic country, came into existence on August 15, 1947. At that time, equal opportunity for all became a goal. Educators endeavoured to adapt school programmes to the ability of the average child in keeping with the slogan, "the greatest good for the greatest number". In the process the gifted children, who are the country's greatest resource have been neglected.

According to Khan (1967) gifted pupils in the schools in India are probably more neglected than any other type of pupils. Much of the teacher's time is spent in dealing with the slow and average child. The gifted are assumed to be qualified and are thus left to themselves. Further, the basic difficulty in providing programmes for the gifted child lies in public attitude rather than professional practice.

Even in the field of research, very few studies have been conducted in the field of gifted children. According to Buch (1991) research in education of the gifted in our country is a recent phenomena. The first study
appeared only in the second half of the sixties, while educational research activity started only in 1980, and till the year 1988, only twelve studies have been identified in this area. The reason, may be, as mentioned earlier that in the past years, the basic educational need was improvement of the qualitative range of educational provisions to meet the demands of universalisation of education. As such, special areas received attention only after achieving a certain level of general educational development.

In the year 1995, we however, see an initiative and a bright step into this field. According to Menon (1995) a joint programme by Bharatiya Vidya Bhavan (BVB) and Anna University is taking the first step towards spotting and nurturing excellence among students who have exceptional ability in Physics, Chemistry, Mathematics, Biology and Computer Science according to the assessment made by schools. The method involves putting the students through a daily schedule of yoga, lectures and project work. A faculty drawn from Anna University, IIT(Madras) and the Institute of Mathematical Sciences (Madras) exposed the high-schoolers to ideas beyond their school curriculum raising basic questions about the way they had always learnt science. The response was enthusiastic. This programme appears to have promise and may form an annual feature in the years to come.
2:03 HISTORICAL LOOK AT THE DEFINITIONS ON GIFTEDNESS

Over the years, numerous conceptions and countless definitions of giftedness have been proclaimed. Most can be analysed on a continuum that ranges from "conservative" to "liberal" depending on the degree of restrictiveness used to determine eligibility for special privileges and programmes.

According to Greenlaw and McIntosh (1988), the definitions of giftedness in the late 1800's and 1900's were conservative. They dealt only with intelligence, especially as measured by IQ (Intelligence Quotient) tests. For example, Terman's 1921 definition of giftedness put it as the top 1 percent level in general intellectual ability. Before World War II, only the top 1-2 percent were considered gifted, but after 1940, the definition of gifted was expanded to include the top 10-15 percent. By the late 1950's the terms gifted and high IQ had become synonymous. But according to Getzels and Jackson (1958), despite its longevity, the IQ score need not inevitably have been the definer of giftedness. They say that use of the IQ score was historical happenstance, since early inquiries used the classroom as their context and so developed an attendant concern with academic progress.

Soon after the beginning of Terman studies, some people began to call for broader definitions of giftedness than those limited to IQ scores. Witty (1971, p.2) expanded his definition in the 1930's to include "any child whose performance in a worthwhile type of endeavour is consistently or repeatedly remarkable". He proposed this expanded definition because he felt that the intelligence tests did not successfully identify
those students with a high potential for creative expression. He believed
that it was evident that intelligence tests did not elicit any kind of
imaginative, original, or unique response. Witty, believed that ignoring
the creative students would be an injustice to them and to society.

According to Greenlaw and McIntosh (1988) consideration of a person's
IQ score has remained in nearly every definition of giftedness, since
it was first conceived in the early 1920's up through the mid 1980's.
Although an exact score demarcation may not always be referred to, it
sometimes is alluded to, as in Hollingworth's definition (1926, p.31)
"Gifted children are those identified by mental tests as very superior
to the average".

Experts continued to fight for expanded definitions. For example,
De Haan and Havinghurst (1961, p.15) said any child would be considered
gifted, "who is superior in some ability that can make him an outstanding
contributor to the welfare of, and quality of living in society". This
seems to have been the first time that making some sort of contribution
to society was included in a definition for determining giftedness. Hollin­
gworth (1926, p.297) though, already believed that gifted youngsters would
grow up to be gifted adults and would make great contributions. She said,
"Individuals of surpassing intelligence create national wealth, determine
the state of industry, advance science, and make general culture possible".
She appeared to think that identifying and providing for gifted students
were social obligations.

Fliegler and Bish (1959) reviewed the literature on the gifted from
1953 to 1959. Their definition of the term gifted encompassed children
who posses superior intellectual potential as well as a functional ability to perform in the top 15-20 percent, talents in such specific areas as science and mathematics, or unusual creative ability. This definition was the first to mention potential. All previous definitions used some outward sign of "remarkableness" or a measurable trait to prove that a person was gifted. The idea of including potential in the definitions has continued, especially as educators realise that a significant number of persons capable of making contributions to the nation are excluded by other definitions.

According to Sumption and Luecking (1960), two definitions, both from the early 1960s, seem to focus on "thinking" abilities - in a creative, abstract, problem-solving mode. Since definitions do indeed reflect the times, it is apparent that these came out of a period when the nation was realizing its needs for thinkers and problem solvers. Thus, Sumption and Luecking (1960, p.6) defined the gifted as possessing the "potential to perform tasks requiring a comparatively high degree of intellectual abstraction or creative imagination or both".

One of the most recent definitions and one that has gained favour in a number of areas, was developed by Renzulli (1978), creator of the Enrichment Triad Model. According to him, "Giftedness consists of an interaction among three basic clusters of human traits - these clusters being above average general abilities, high levels of task commitment, and high levels of creativity. Gifted and talented children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance. Children who manifest
or are capable of developing an interaction among the three clusters require a wide variety of educational opportunities and services that are not ordinarily provided through regular instructional services". (1978, p.184)

If we examine Renzulli's definition, we find that it is broader in one sense than some previous ones, but narrow in another sense. It is broader in that it includes many general performance areas and an endless number of specific performance areas. Its narrowness comes from the requirement that the gifted possess all three of the traits that Renzulli says characterize a gifted person. As a result, the nonachieving gifted student would be excluded. Creativity alone does not make a gifted person, says Renzulli, above-average ability alone does not make a gifted person; task commitment alone does not make a gifted person; neither do any two of the above in combination. All three must interact.

2:04 IDENTIFICATION OF GIFTED CHILDREN

A review of the literature related with the identification of gifted children show the following:

According to Khatena (1982) Lewis Terman, in order to locate 1,000 subjects of IQ 140 or higher from school children in California, followed a two step procedure for the identification of gifted children in kindergarten and Primary grades and a three step procedure for children in grades III to VIII. Terman made use of the following procedures:

(a) Teacher's nominations

(b) Standford Binet Test (1960) for kindergarten and Primary children,
(c) A Group Intelligence Test, and
(d) Terman concept Mastery Test (for children in grades III to VIII)

Terman, in 1916, set the lower limit for the gifted persons at 110. In the year 1937, only children having IQ of at least 120 were judged to be superior. Some years later, children with IQ 125 or above in the "major classes" of Cleveland, Ohio, were classed as superior (Khan, 1967).

In another study which dealt with survey on Gifted Children, conducted by Tannor (1966) the following were the screening techniques used to search out the superior students in fifty American cities with a population over 2,50,000:

(a) Teacher's nominations
(b) Achievement Tests
(c) Group Intelligence Tests
(d) Individual Intelligence Tests
(e) Maturity or Psychological Tests
(f) Aptitude and non-academic Tests

In the well known study of Getzels and Jackson (1962) as reported by Khatena (1982), to study the relationship between creativity and Intelligence, the sample, included children who were in the top 20 p.c on the Intelligence tests scores as derived from Henmon - Nelson Tests of Mental Ability, Standford - Binet and the Wechsler - Intelligence Scale for children (1949).
Srivastava and Budhari (1990) in studying creativity with different levels of intelligence made use of P.M. Mehrotra's Test of Group Intelligence to assess the intelligence level of the subjects.


In a study of Adjustment of Mentally Gifted and Retarded Children by Singh (1982), Joshi's General Mental Ability Test was used for measuring the intelligence of the students.

To study the relationship among Creative Thinking, Intelligence and School achievement, Acharyulu (1978) made use of the Culture Fair Intelligence Test, Scale 2 (1960) to measure intelligence.

Babu (1977) in his study, dealing with the Personality Factors of High-Intelligence-High Creative Thinkers and High-Intelligence-Low Creative Thinkers, used two tests of Intelligence - one verbal and the other non-verbal to get a sample of High-Intelligence subjects.

In studying the Gifted Adolescents, Walla (1973) made use of two intelligence tests - (i) Jalota's Group Test of General Mental ability in Hindi, (1972) and (ii) Singh's Group Test of General Mental Ability.

Joshi (1974), in his study of Creativity and some Personality traits of the Intellectually Gifted High Secondary Students, utilized Desai-Bhatt Group Test of Intelligence. Children with IQ 120 and above were termed as gifted children.
In the study of Creativity as related to Intelligence, Academic Achievement and Security - Insecurity, by Basu (1983) Intelligence was measured by using Standard Progressive Matrices prepared by J.C.Ravens (1958).

In another study by Sampat (1984), intellectually gifted children were identified by using:

1. Teacher's ratings
2. Ahuja's Group Test of Intelligence
3. Desai and Bhatt Group Test and
4. Standard Progressive Matrices

Children who scored above the 90th percentile and more were selected for the sample.

Singh (1983), in order to study the mentally superior children, in relation to Need Patterns, Achievement and Adjustment utilized the Mixed Type Group Intelligence by P.N.Mehrotra and the Scale by Kuppuswamy to identify the mentally superior children.

To know the Adjustment Differences of High Intelligent and Low Intelligent Adolescent students, Jalota's Group General Mental Ability Test and Paryag Mehta's Samanaya Budhi Parikshan were administered to the 365 Secondary School students. Children who had an IQ of 100 and above were considered as High Intelligent students. This study was conducted by Agarwal and Gupta (1984).

From the above, it may be concluded that when it comes to identifying or selecting gifted children, most research scholars rely on Standardized Intelligence Tests. Though, a mention should be made that Intelligence tests do not measure all the intellectual abilities of the child, yet the IQ has been depended upon from time to time. According to Kirk (1970)
the IQ however, does tap a wide variety of abilities and for a child to obtain a high IQ he has to show either considerable ability in many areas or tremendous ability in more limited areas. Secondly, besides Intelligence Tests, there are no other measuring devices which would be able to measure the child's intellectual abilities. Thus Intelligence Tests are being used to identify the gifted children.

Regarding the cut off point, there has been a wide divergence in determining it. Till the present day, teachers, educators, scholars have not come to a conclusion as to which point should be the cut off point. This is because researchers use various cut off points along the distribution of scores for various purposes and in different studies. This is also seen in the studies mentioned above.

In this study, however, all children with Above Average Intelligence are taken to constitute the group of gifted children. Thus, the cut off point has been taken as 110 as was done by Terman in 1916 to identify the gifted children (Khan, 1969). Further, the different levels of giftedness are based on the lines of the table given by Terman and Merrill to illustrate the relationship between IQ and degree of brightness (Terman and Merrill, 1937).

2:05 CHARACTERISTICS OF GIFTED CHILDREN

INTELLECTUAL CHARACTERISTICS

The intellectual characteristics of the gifted are those traits that highly able students exhibit as they use their intellect, i.e. their power for knowing and their capacity for rational or intelligent thought.
The acquisition and application of knowledge is an ability that is markedly superior in gifted children.

Gifted students are distinguished in acquiring and applying knowledge because of their intellectual advancement and their super normal capacity for knowledge. Their ability to learn is enhanced by an extra ordinary memory and quickness to see relationships. The combination of these traits along with varied intellectual interests, almost insatiable curiosity, and a penchant for independent learning presents a marvellous challenge for parents, teachers, librarians and all who come in contact with gifted children (Greenlaw and McIntosh, 1988). Baker (1949) said that the gifted have a 'surplus' of mental age beyond their chronological age, by the age of six, gifted children have a mental age of at least one year beyond their chronological age.

One of the most conspicuous indications of intellectual advancement is gifted children's early and accurate use of a large vocabulary. Goodenough (1956) suggests that some young gifted children play with words the way average children play with toys. Thus, many gifted students are intrigued by word games and books that deal with words. Much more than average children, the gifted read dictionaries, encyclopedias, and dictionaries. Observation of gifted students reveals that they are more interested in reference books in their early youth than most people ever are.

Another early indication of exceptional intelligence is the proficient use of linguistic structure. They often speak in phrases and whole sentences earlier than average children, and they are also able to reproduce stories at an early age.
Gifted students are not endowed with a totally different intellect, but they seem able to use it in a different way. For example, able and average children pass through the same sequence of Piagetian stages, but it appears that gifted students may enter the stage earlier and progress through them more rapidly than do average children. Webb (1974) compared gifted children's intelligence with skilled use of tools. Although not possessing different tools, the gifted may figuratively have a larger tool shed: a superior intellectual capacity. Because of their extraordinary ability to assimilate (to take into their mind and thoroughly comprehend), the gifted are able to absorb large amounts of material in a fraction of the time required by average students. Then, making use of their accurate memory, the highly able develop a broad knowledge in many different areas. Gifted student's range of learning is wider and deeper than average student, and it is often apparent that the gifted know about things of which other children are unaware.

This depth and breadth of knowledge are the result of and are fed by highly capable children's superior assimilation, marked retention, and varied intellectual interests. Whereas an average child may be interested in motor cycles, tetherball and dogs, a gifted counterpart may be interested in those three areas in addition to the saxophone, photography, political scandals and designing and solving intricate logic problems.

Gifted children's wide range of interests stem from their great desire for learning, and, in their quest for knowledge, a continuous discovery of new areas to explore. Their curiosity sometimes seems insatiable, but the questions they ask are not meant for pretentious display nor to
annoy (as is sometimes believed) but rather as a means of finding out. When gifted children ask questions, their primary purpose is to obtain answers about the reasons behind an occurrence, the motivation behind an action, or the purpose for completing a task. Their questions may at times seem like defiance because of a perceived challenge to the status quo or the authority figure present (e.g. "why are we doing this assignment?") but in fact the queries represent independent thinking and a need for explanation. Sometimes the gifted seem to have a striving for knowledge that is almost subconscious (Greenlaw & McIntosh, 1988).

Besides satisfying their intellectual curiosity by asking questions, gifted children read and observe a great deal. Many but by no means all, gifted children read early. They read more history, biography, science, informational books, poetry, drama and folk tales than their average age mates. This wide reading allows them to begin to satisfy their craving for information.

Often, bright children will choose to study some subject that is difficult for them, both for knowledge it will afford and for the challenge. Academically motivated, able children find the challenge and accomplishment of a difficult task rewarding in itself - much more so than many little tasks.

Gifted students do well and often like to pursue topics independently. Such initiative is indicative of the distinctive thinking they will do later within their chosen vocation. They will feel compelled to say or do things distinctively. Since they may have interests that go beyond what any available person (teacher, parent, neighbour) can directly help
them with, they often work alone.

The gifted can work alone for long periods without frequent checks by others. Their sustained attention span is a by-product of their mental endurance, and during these periods, they are able to accomplish greater units of work than would an average person within the same constraints. The gifted child has a superior ability to focus on a task and tenacity of purpose rarely seen in the average child.

In speaking of the young gifted child, Hildreth (1938, p.301) declared, "His mental energy is comparable with an electric filament that glows continuously without exhausting itself. He hungers for problems, asks for more or invents new problems when the supply gives out". This hunger does not come in spurts but is rather a continuous, graving hunger that cannot really have the edge taken off it. There is a flow, a relatedness in the efforts and attention of the superior mind. "Relatedness" and "relationship" are key words to organise and relate their experiences. Gifted children are less likely to see things as discrete and isolated, but rather are quick to see relationships and to observe and associate similarities. This ability helps able children to readily absorb concepts and then organise them and apply them efficiently.

Such rapid absorption and efficient organisation of concepts allow gifted students to generalise readily. They look for and easily grasp the principles that underlie their learning and are quick to see the applications of these principles (as in mathematics), thus preferring to delve into the why behind a concept rather than the what.

Because of the way gifted children learn, they do better in some
subjects than others. They tend to do well in reading, mathematics, language, science and the arts. Their written and oral communication skills are quite effective. Their ability to utilize rather complex associative methods often gives them a flair for science and maths. They do less well in history and spelling because, as usually taught, the latter two depend on rote memory than on understanding principles and concepts. Often, the gifted student’s poorest grade will come in hand writing because of the repetition involved, which the gifted child finds less than stimulating. Overall, gifted students have above average grades and perform significantly better than their average age mates (Greenlaw and McIntosh, 1988).

PERSONALITY CHARACTERISTICS

According to Webster’s New Collegiate Dictionary, Personality has been defined as “the complex of characteristics that distinguishes an individual; the totality of an individual’s behaviour and emotional tendencies”. Describing the personality characteristics of a group of individuals seems like a tall order, because every individual has a very distinct personality. However, it is possible to attribute certain characteristics to the gifted as a group; the characteristics that many of them share give them a degree of commonality.

SELF CONCEPT

An adult’s self concept is derived from many factors, including home, peers, work and hobbies. A child also develops a self concept based on several factors, but family and school dominate the list.

According to Greenlaw and McIntosh (1988), children’s self concepts are not based on a single perception but rather on a compendium of perceptions, which concern their ability to succeed in academic subjects in
addition to other areas. In general, gifted students' self concepts are closely tied with their academic learning. Since they usually do well academically, it follows that most gifted students have positive self concepts.

Students who are gifted but have not had their giftedness recognized or have had it consistently denied will probably not have a good self concept. Likewise, students who are very capable in most areas but fall short in a few may have less than a positive self image. Those students who are both gifted and handicapped often fall into this latter group, particularly if they are learning disabled. They are intelligent and sensitive enough to realize that their gifts are being fettered by their learning disabilities. They may experience extreme frustration, whether they work in a "regular" classroom, performing at an average level because their giftedness allows them to compensate for their learning disabilities, or in a learning disability resource room, where many of the activities are remedial and/or repetitive.

There is a misconception however, about the gifted and that is since their work is good and their self concept is fairly high, they do not need any encouragement. They however do, since even the high achieving gifted students tend to under-estimate themselves (Torrance, 1966). They not only need encouragement to "keep up the good work" but also motivation to do more, to strive beyond what they have already accomplished.

EMOTIONAL CHARACTERISTICS

A common misconception is that persons of superior intellect are often on the borderline of mental instability. But in fact, giftedness is neither a shield from nor a loadstone to emotional problems. Numerous
researches (Gallagher, 1975; Monks and Ferguson, 1983) have found the gifted to be emotionally stable, both as children and as adults.

According to Greenlaw and McIntosh (1988), the idea that the gifted are emotionally unstable may stem from observations of the "pseudo-gifted" children of average intelligence whose parents have pushed them so that they are trying to achieve beyond their capability. In fact, the percentage of maladjusted gifted children is less than the percentage of maladjusted children in the total population. Adjustment problems among the gifted tend to result from adult misunderstanding, under achievement, unfulfilled social, personal and status drives, and poor self concept. According to Barbe and Renzulli (1975), in fact, the gifted are a group of individuals who are especially advantaged in confronting and mastering the challenges of life in every sphere. Perhaps their superior minds enable them to recognize and analyse their problems of adjustment and then find the best way of coping with them. In any case, the emotional profile of gifted children is stable, not neurotic. They possess many characteristics of the self-actualized person.

In fact, gifted children tend to be more cheerful and happy than the norm for their age-group. They also display a sense of humour that is both quick and sophisticated. The highly intelligent child's remarkable sense of humour is rarely used at the expense of someone else. Their sensitivity promotes heightened empathy for their fellows. Their sensitivity may be the governor behind the higher level of physical and emotional self control exhibited by the gifted. When compared to their age mates, the gifted are more likely to control aggression and are less likely to
display anger or tease others, especially those younger than themselves. It seems that the gifted engage in fewer anti social behaviour than the norm.

The behaviour of highly capable is usually more dependable, responsible and conscientious than that of average children. As a group, they are more trustworthy and more likely to resist the temptation to cheat than a group of non-gifted children.

The gifted have less need for approval from authority figures. They have a stronger sense of who they are and are more self-sufficient than the average. Autonomy and independence are nearly always attributed to the gifted. In parents' rating of children's independence, gifted scored higher than average children (Monks and Ferguson, 1983).

To be less conforming requires the superior ego strength possessed by the gifted. But the highly able child is determined and persistent, possessing strong will power. As a result, gifted students are often characterised as individualists.

SOCIABILITY CHARACTERISTICS

Picture a heterogeneous classroom and look around to find the gifted child. Is it the child who is obviously an isolate, almost totally ignored by others? Or is the child being teased and taunted by other children? Almost without exception, for the moderately gifted child (IQ 130-160), the answer to both the questions is no. On the whole gifted children tend to be very sociable. Researcher such as Silverstein, (1962), found that bright children are popular with all intellectual groups.

Coming to the question, who are the gifted children's friends - this depends on, among other things, the degree of a child's giftedness.
When gifted children are segregated, they tend to choose each other for friends, whether the segregation is complete or just for the part of the day. Otherwise, gifted students tend to prefer and choose playmates older than themselves, for obvious reasons. If a gifted child has an MA (Mental Age) of ten and CA (Chronological Age) of six, then playing with other six-year-olds may not be much fun. A younger gifted child may thus have a problem finding playmates, for example, most ten year olds are not going to want to play with a six year old of any MA.

Another problem for young gifted children is the way they want to play. The gifted often know more games of intellectual skill (eg. bridge, chess) for which they have trouble finding opponents, and may have less of an affinity for seemingly aimless sensori-motor games (Greenlaw and McIntosh, 1988).

The social status of the gifted does not seem to fluctuate, depending on certain age and environmental factors. Researchers such as Austin and Draper (1981), Gallagher, (1975) have reported that at the secondary level, the social status of gifted children seem to show a relative decrease. This comes at a time when the need for peer acceptance is at its peak, but peer-group conformity is sometimes a problem for the gifted youth.

Gifted children seem to develop early an understanding of the social setting in which they live and the way in which they fit in it. In other words, their social cognition is precocious. Gifted children seem able intuitively to recognise the dynamics of group behaviour, often quite early. They identify the social status of others and themselves better
than average students do. They are capable of great empathy and insight into a situation. Superior children, as a group, tend to develop and cultivate comparatively unselfish and social points of view, usually at an early age. Superior social cognition helps children cope with their differences, which are often the result of nonconformity (Baker, 1949).

MORAL AND ETHICAL CHARACTERISTICS

On the whole, gifted children tend to be advanced for their ages in ethical and moral sensitivity. In fact, a gifted child of nine may have the moral development of a fourteen-year-old (Santayana, 1947). More than average persons, they tend to be keenly aware of the sad state of the world and feel compelled to do something about it. They are also concerned with religion and issues of right and wrong, good and evil, justice and injustice much earlier than other youth.

Very bright young children may ask parents or teachers to answer questions that have been puzzling philosophers for thousands of years. When unable to get an acceptable answer, these gifted children may ponder over the issue and continue to seek an answer from various sources (books, religious figures, grandparents). Frequently the answers that these children eventually find are original and unconventional. They are however, the result of systematic logic that is reflective of high moral reasoning.

Sometimes it is asked, why are the gifted capable of precocious and sophisticated moral and ethical reasoning? Perhaps according to Sisk (1982, p.22), "intellectual functioning which allows them to have superior memories, capacities for learning, and powers of assimilation, .... also allows them a superior moral reasoning capability". However, high IQ
does not guarantee a high level of moral reasoning, but according to Greenlaw and McIntosh (1988) both developmentalists and social learning theorists agree that certain levels of intelligence are necessary for high moral reasoning.

Although the gifted are provided with both the seeds and the fertile ground for becoming the ethical leaders and problem solvers of the future, proper cultivation is necessary. Parents and teachers should strive to connect intellectual experiences with the consciences of gifted children.

**FAMILY CHARACTERISTICS**

Is there a particular family configuration, a particular ethnic group or socio-economic clan that predisposes a youngster to be gifted? The answer is No. So why talk about the family characteristics of a gifted person? According to Greenlaw and McIntosh (1988), many studies of gifted persons' backgrounds have been conducted. The studies have involved questionnaires, interviews, surveys, observations and evaluation of biographies. The research studies have produced so much information that it is possible to paint a picture of a 'typical' gifted child's family. However, more than any other generalisation concerning the gifted child, the family picture depicts only favourable conditions or tendencies. Absence of such conditions does not preclude the possibility of a gifted child and their presence does not guarantee a gifted child, nor should the composite be used in any way to identify gifted children.

It has been found out however, that families of above-average income often also have above-average education. Children in such families are
raised in an atmosphere that values education and encourages academic achievement. So a gifted child's interest in archaeology is more likely to be encouraged by educated parents than by parents with a grade school education.

With regards to the likelihood that a gifted child is the first born or only child, a few studies i.e Benbow and Stanley (1980); Cicirelli (1967) have refuted the idea that birth order makes a difference but many still support it. Example, Cox (1977); Pulvino and Lupton (1978).

Thus, knowledge of the parent's occupation or the socio-economic condition of the home of the child is a very precarious index of the child's intelligence.

**PHYSICAL CHARACTERISTICS**

According to Greenlaw and McIntosh (1988) gifted children come in all sizes, shapes and colours. Though they tend to be superior than the average children in terms of physical development, according to Barbe (1955), the superiority is not so marked as their mental superiority.

2:06 **EDUCATIONAL PROGRAMMES-ENRICHMENT**

According to the National Education Association (1961), the various techniques employed in providing programmes for gifted pupils are classified broadly into three types - Acceleration, Ability Grouping and Enrichment. A discussion of the research done in the field of enrichment is as follows:

As a result of concern for the emotional and social development of gifted children, in the late 1920's and early 1930's educators began to advocate enrichment without special grouping as the desirable modification of school experiences for the gifted child. The predominant feeling,
according to Passow (1953 p.3), "was that the healthiest school environment for the child would be created if he remained with his age peers, regardless of the disparity in the learning ability".

Enrichment in the regular programme continued throughout the 1930's and 1940's, but educators could not describe the programme adequately nor could they support their opinions with experimental evidence. Passow (1958) ascribes it to the difficulty in designing research in this area.

A follow up study of enrichment pupils who entered Junior High School, University City, Missouri, was made by Dunlop (1955). Age, previous school attendance, section assigned in Junior High School, and the number and kind of extra curricular activities chosen were substantially the same for both groups of children. The findings indicated that enrichment programme helped to motivate a substantially greater number of the most able pupils to make more effective use of their abilities.

In the 1960's a seminar for the able rural youth in Lewis County, New York invited twenty five juniors and seniors from six rural high schools. The children had a week for enrichment in literature, music, art and drama. Evaluation shows that seminar members seem to have grown in self-expression and in critical thinking (Goldberg, 1960).

A special programme for the talented youth was set up at the Iowa State Teachers College for eight weeks in the summer of 1960. The experimental group and the control group consisted of sixty students each. The over all results of evaluation indicated that the experimental group showed various degrees of superiority over the control group in scholastic achievement, in needs, and problems, and in social and emotional maturity, but there was no appreciable difference between the groups in interests (Hampton, 1960).
Some of the curriculum models which help provide a theoretical framework within which specific enrichment activities may be planned are:

1. The Enrichment Triad Model (Renzulli, 1977)
3. Multiple Menu Model (Renzulli, 1988)
4. Pyramid Project (Cox, Daniel, and Boston, 1985)
7. Treffinger's (1975) model for increasing self-directedness
8. The Autonomous Learner Model (Betts, 1985)
10. The Taylor (1978) Multiple-Talent Totem Pole Model
11. Bloom's Cognitive Taxonomy (Greenlaw and McIntosh, 1988)

Some of the models like Renzulli's Enrichment Triad Model, Bloom's Cognitive Taxonomy and William's Teaching Strategies for Thinking and Feeling are being mentioned in Chapter V.

It can be concluded that many people who disapproved of ability grouping have seized upon enrichment as a worthy substitute. Enrichment programmes present a wide variety of creative activities for the gifted. The above studies show that participants in these programmes have made greater scholastic achievement and critical thinking gains than their controls.
GIFTEDNESS AND CREATIVITY

From the identified studies pertaining to Giftedness and Creativity, it can be noted that different creativity tests have been put into use for various purposes and in various studies. Some of the tests made use of are:

(i) Standardized Creativity Test, in Malayalam (patterned after Gilford's Test of Creative Thinking) which was made use by Babu (1977) to make a comparative study of the Personality factors of High-Intelligent - High Creative Thinkers and High - Intelligent - Low Creative Thinkers in Secondary Schools.

(ii) Torrance Test of Creative Thinking was used by Acharyulu (1978) and Gnanamba (1982). The former used the test to study the relationship among Creative Thinking, Intelligence and School Achievement, and the latter used it to identify Gifted Children.

(iii) Creativity Test designed by N.S.Chauhan and G.Tiwari was used by Bhaduria (1980) and Babu (1983) to make a comparative study of Creativity, Self Concept and meaning of Success among gifted and other science students and Creativity as related to Intelligence, Academic Achievement and Security - Insecurity respectively.

(iv) To study the needs in relation to Verbal Creativity, Budhari (1990) utilized Baquer Medhi's Test of Verbal Creative Thinking.

The findings are as follows:

(i) The relationship between Intelligence and Creativity was found out as low positive significant in all types of Creativity Scores.
The gifted students showed significantly greater creative potential than the non-gifted science students on verbal and literary problems and that over all creativity mean score of the gifted students was significantly higher than that of the non-gifted students (Bhadauria, 1980).

There was positive correlation between Intelligence and Creativity, according to Gnanambal (1982).

According to Basu (1983), the correlation and level of significance between Intelligence and Creativity were .90 and .01 respectively. With regard to the gender factor, Acharyulu (1978) found out that there was no sex difference in Intelligence and Creativity, especially in figural creativity.

With reference to the relationship between Intelligence and Verbal Creative Thinking and Intelligence and Non-Verbal (figural) Creative Thinking, the average correlation, according to Acharyulu (1978), between Intelligence and Verbal TTCT (Torrance Test of Creative Thinking) was .21, it was not only significant but was also higher than that between Intelligence and figural TTCT (Torrance Test of Creative Thinking) which was .01.

Singh (1982) in his study on Adjustment of Mentally Gifted and Retarded Children found out that (i) There was a difference in general adjustment ability of Mentally Gifted, Average and Retarded Children, (ii) Different Adjustment situations had different effect on the three groups of students and their reaction were also different.

2:08 GIFTEDNESS AND ADJUSTMENT
The above leads us to look into the adjustment pattern of gifted children.

In the study conducted by Pandit (1973) which deals with Adjustment Problems of Gifted Children, the following three conclusions were derived which was based on a Problem Check list.

(i) From the differences in the Mean, the gifted group had comparatively less problems than the non-gifted. Thus, the adjustment of the gifted was superior to that of the non-gifted.

The above finding was also supported by Bhadauria (1980) Gnanambal (1982) and also by Agarwal and Gupta (1984). Bhadauria (1980) found out that gifted students scored significantly higher on Adjustive and Spontaneous Flexibility than the non-gifted students. Gnanambal (1982) emphasising on social qualities concluded that gifted students were found to be superior to the non-gifted students. Agarwal and Gupta (1984) in their study concluded that High-Intelligent adolescents were comparatively better adjusted than their low-intelligent peers.

(ii) Among the group of gifted, gifted girls had comparatively less problems than gifted boys. The differences in their over all adjustment as well as area wise adjustment were statistically significant except in social adjustment. It was, therefore, concluded that girls were less problematic than boys.

With reference to the second finding of Pandit (1973), Singh (1983), using the Adjustment Inventory for School Students - developed by Sinha and Singh (1984), it was found that superior girls had superior adjustment in social and sexual attitude.

Both Pandit (1973) and Singh (1983) found out that girls were better adjusted than boys, but Walla (1973) found out that gifted males were better adjusted as compared to the gifted females. Further, according to Joshi (1974), giftedness was contributing to emotional maturity in
(iii) In the area wise analysis, it was found out that was one in which they had more problems. As such, their social adjustment was inferior. In family adjustment, however, they were on a par with the non-gifted, since the differences were not statistically different.

Though in the above finding, Pandit (1973) found out that it was in the social adjustment that gifted children had more problems, yet Urmi (1984) found out that the gifted children were socially well adjusted and well balanced.

According to Agarwal and Gupta (1984), Intelligence contributed to the adjustment of an adolescent in health, society, school and emotional areas, but its contribution in the area of home was found to be insignificant.

2:09 GIFTEDNESS AND ACHIEVEMENT

Very few studies have been identified relating to giftedness and achievement. The tool used in most of the studies was the total marks of the student's performance as obtained from school records. The findings are as follows:

(i) The achievement scores of the gifted students were significantly higher than that of the non-gifted students (Bhadauria, 1980).

(ii) There was a positive relationship between Intelligence and achievement for the superior group, according to Singh (1983).

(iii) In Urmi's (1984) study, gifted children were found to be high achievers at school examination. Further, they were profusely interested in reading on various subjects in both dimensions of width and depth.

(iv) According to Basu (1983), the correlation and level of significance between Intelligence and Achievement was .92 and .01 respectively.
(v) Acharjulu (1980) however, found that it was not only intelligence which was contributing to the achievement, but both intelligence and creativity contributed to the high achievement of gifted students.

CONCLUSION

From the studies gathered, it has been apparent that not enough studies have so far been conducted on the gifted children in India. Because of this, and the emphasis being put on the necessity of identifying and developing talent among children, this study hopes to contribute to it. It is also hoped that it would arouse interest and motivate, that it may lead the numerous studies at micro and macro level that may follow, especially in the North-Eastern part of the country.