CHAPTER I

INTRODUCTION
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Throughout most of the world's history, the wealth of any nation has been generally related to the productive capacity of its citizens. Every complex society has concerned itself in one way or another with using and developing talent (Renzulli 1984). The gifted and the talented are the most valuable resources of any country as rightly remarked by Sternberg and Davidson (1986) in their book "Conception of Giftedness".

Giftedness is arguably the most precious natural resource a civilization can have. There are any number of resources, natural and man-made, that contribute to the development of a civilization. But if one looks back through history and asks just what it is that made certain civilizations great, or remembered, or esteemed, it is inevitably the gifts, whether individual or collective, of those who lived in them. These gifts are what give civilizations such as ancient Greece or the European Renaissance a special place in the history of humankind.

Developing countries aiming at becoming self-sufficient and trying to carve out niche in the world for themselves, need to harness their capable man-power. Individuals with exceptional abilities are the only ones who can evolve an alternative strategy within the available national resources, transform the nation's structure and image and usher in new developments in almost every field of human endeavour. As Wolf (1954) rightly comments:

"The brains of its citizens constitute a nation's greatest asset. From the minds of
The goal of growth is therefore inextricably linked with the maximum utility of the talents of the people. The responsibility lies with nations to utilize talent for the benefit of the entire human race in general and its own people in particular. The gifted and the talented should not be neglected and frustrated and as Whitehead warns "In the modern world the rule is absolute: any race which does not value trained intelligence is doomed."

Ironically, inspite of the important contributions gifted people are capable of making towards development in almost all areas, be it technology, science, literature, art, social and human relation, business etc., world-wide attitudes towards their identification and nurturance have been vacillating and are peculiar in nature. Reis (1989) also made a similar observation and remarked. "It is difficult to elicit sympathy for the gifted children and next to impossible to arrange sustained public support for special provisions that may meet their needs". Attitudes towards support of and special programmes for the gifted can legitimately flourish only when excellence and innovation are required as means to achieve the goals of national security and development. When nations feel secure then the
concern and provision for the gifted are allowed to wither in favour of emphasis on equity. Gallagher (1986) note that it is not possible to be both for modernization and against excellence and meritocracy. In America there was a positive turn towards gifted children and special attention was paid to them in 1950s when the Russians launched the world’s first satellite, which created a feeling of insecurity in the American mind that they will be left behind in technological and scientific advances. But later when America raced far ahead in the space rivalry, society’s attitude reverted to indifference towards the gifted.

However in 1980s and 1990s world wide recognition and support of the gifted and talented increased and different countries directed large amounts of funds for establishing centres, providing special education and guidance facilities and for conducting research on gifted individuals (Reis, 1989).

A survey conducted by Passow (1984) also indicated a similar trend in countries all over the world. Developed and less developed countries, according to him, have shown concern for identifying and nurturing the gifted and talented. Each nation has developed means for identifying bright young people, encouraging them for higher education and rewarding them suitably (Raina, 1991) and in doing so, these countries try to ensure the maximizing of their
contribution to society. The significance of such planned effort has been visualised by Anderson (1964) as follows:

"We sort over many individuals in order to locate those on whom we are justified in spending special money, providing additional facilities and in giving unusual encouragement. This is not so much because of our good-will, but because we wish society at a later time to reap substantial benefits from the skills and capacities which these individuals show, in most practical applications this results in a table of probabilities which expresses for various levels of measured capacity, the chances that individuals will, given opportunities, bring society some return for its investment in their training".

Although, the underdeveloped countries have realized the importance of conserving and developing talent and have launched various programmes, these programmes are, in contrast to developed countries retarded in nature. Nevertheless there is an increase in awareness for taking special care of the gifted and the talented, and vigorous efforts are being made through various educational bodies to better the level of facilities available for the gifted population in developed countries. The lack of attention and special provisions to the gifted in developing countries may be due to certain unavoidable and inherent factors in these societies. Firstly, lack of finance may be the main inhibiting factor for the implementation of certain programmes for the identification, education and guidance of the gifted. Secondly, the factor of over-population (this
stands true for India) may act as a deterrent for the provision of special facilities and programmes for a wide number of gifted students in a uniform and democratic way and these programmes may be limited to a certain class of people and in major cities only, leading to selectivity and no uniformity of provision of special facilities, which is undemocratic in nature. Thirdly, lack of research evidence supporting the effectiveness of educational and guidance programmes for the gifted is also a potent factor underlying the scant support offered to these children. There is simply not enough scientific research done in underdeveloped countries which gives clear answers to the basic issues of defining describing and identifying their own gifted students residing in their specific culture. There is a dearth of research providing evidence that gifted students become gifted adults and contribute to society’s growth and personal fulfillment because of special education and counselling facilities.

Development of the gifted cannot be expected to advance in underdeveloped countries if research efforts do not establish an understanding of their unique personality and their needs, and the methods for promoting their talents and capacities. Unfortunately, theoretical and practical orientations as proposed by developed countries are being adopted by underdeveloped countries and thereby neglecting and overlooking the strong influence a culture can have on
the need recognition and provisions for different areas of giftedness. The culture may also influence the unique development of cognitive and non-cognitive traits of the gifted (Eisenstadt 1978). The values, needs, expectations, educational facilities, environmental stimulations are a few other examples of cultural differences which may effect giftedness (Callahan 1981). Thus the present research work focuses on cultural and gender differences on achievement motivation, locus of control and vocational choices of gifted students. The ensuing section presents the detailed description of the above said concepts (i.e. giftedness, achievement motivation, locus of control and vocational choice).

GIFTEDNESS

Concept of Giftedness

Krapp (1986) in his review concluded that "giftedness" is used in a number of ways,

(a) General but also specific-giftedness are regarded as a general intellectual dimension but are also seen as manifesting themselves in particular and specific areas.

(b) A cause but also result-specific and particular achievements are seen as the result of giftedness, and are also basic for labelling someone as gifted.

(c) Both from the point of view of quantitative and qualitative factors we speak of the level of giftedness and also of the kind of gifts a person possesses.

Krapp (1986) and later Cropley & Mcleod (1986)
clearly emphasized that giftedness is both general and specific. Exceptional performance in different areas is seen as a function of general intelligence and specific abilities needed for excellence in these areas. Vernon (1971) suggested that giftedness occurs in four areas; which he called "intellectual", "artistic", "social" and "others". Piechowski (1979) argued for recognitions of gifts in the following areas: psychomotor, sensual, intellectual, imaginative and emotional. Bongartz, KaiBer and Kluge (1985) stressed the importance of social gifts in the modern world viz compassion, empathy and altruism, whereas George and George (1986) and Broomand (1986) emphasized "leadership" as a crucial gift in modern times.

In U.S. the most quoted types of giftedness references for these areas are:

1. General intellectual ability;
2. Specific academic aptitude;
3. Creative thinking;
4. Leadership ability;
5. Visual and performing arts;
6. Psychomotor ability.

Children capable of high performance include those with demonstrated achievement or potential ability in areas either singly or in combination.

In Great Britain the types of giftedness mentioned and widely used are - academic, music, sport, dance, art: and
children who exhibit a markedly superior development level of performance and achievement in the above areas are labeled as 'gifted'.

The broader approaches towards types of giftedness mentioned above leads to indicate the importance and value of all the areas of giftedness, and literature on giftedness is concerned about their development and need to be nurtured. The present research is directed to study extensively one such area of giftedness*, namely, academic excellence. It is obviously not possible to study all the areas of giftedness in a justifiable way in one research work. The focus of the present research, therefore is on those students who demonstrate excellent thinking, learning skills and outstanding intellectual performance. Although the title of this research work used the conventional and non-controversial expression "Giftedness", basically the interest of the present research work is in the area of successful performance of intellectual tasks requiring high levels of academic knowledge and skills. Cropley and McLeod (1986) have labelled it as 'Academic Excellence'.

Earlier Richert (1982) had labelled them as ‘academically talented’ students and described them as those scoring 95th percentile or higher in the measures of IQ and standardized tests of academic achievement. Kerr & Colangelo (1988) also studied a group of students put under the label of ‘academically talented’ and defined as individuals with

* Although there is no doubt about the importance and value of other areas of giftedness
high performance on IQ and academic achievement but
different in affective, social and career development needs.
The focus of the study is a specific area of giftedness. In
general the concept of academic excellence, academically
talented, academically able will be mainly referred and used
but because of the predominance of the term "giftedness",
this expression will continue to be used from time to time,
however, generally because it is very widespread in the
relevant literature.

Definition of Giftedness

The traditional definition of giftedness is based
solely on the level of general intelligence (IQ) as measured
by various standard intelligence tests. Terman's famous
studies (1925-1959) used IQ 140 or above as measured by the
standard Binet Intelligence Scale, for defining giftedness.
Dunlop (1958) introduced three terms describing degrees of
high intelligence: superior - with IQ 120-125 or above and
gifted 135-140 IQ and above and extremely gifted having IQ
170 to 180 and above. It was felt that standard intelligence
tests alone can not possibly encompass all the capacities of
truly gifted children.

Over the past century, the meaning of the term
"gifted" has changed from a single-dimensional (high IQ)
definition (Terman et al, 1925) to a multidimensional concept
that includes general intellectual abilities as well as
specific abilities and talents, (Guilford, 1956; Taylor, 1968; Sternberg, 1982; Gardner, 1983).

Witty (1940) defined the gifted as "one whose performance is consistently remarkable in any potentially valuable areas of human ability". L'abate & Curits (1975) viewed giftedness as a relative kind of behaviour in which a child exhibits unusual competencies, abilities, knowledge or skills by which he/she performs other specialized or generalized kinds of tasks requiring abilities beyond those of the average person.

Multi-dimensional approaches to the definition of giftedness are broad-based and take into account a wider range of the capabilities of the gifted. In recent years these approaches have been discussed by psychologists and educationists. These definitions are discussed briefly.

Definition based on Marland’s Education of the gifted and talented: Report to Congress of the United States by the U.S. Commissioner of Education (Marland, 1972) is as follows:

"Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programmes beyond those normally provided by the regular school programme in order to realize their contribution to self and society."

All or part of this definition is used by over 94%
Renzulli's Three-Ring Conception of Giftedness: Renzulli (1978) criticized Marland's definition and proposed that giftedness should be viewed as an interactive cluster of above average abilities, creativity and task commitment (Figure 1). He believes that these are the factors that should be considered when determining which students are eligible for a programme for the gifted. The inclusion of the non-cognitive factor of task commitment sets this definition apart from past definitions of gifted and talented students (Parke, 1989). Callahan (1981) criticized Renzulli's definition of giftedness as being similar to the earlier definition of genius offered by Galton & Albert.

Fig.1: The "three ring" model of excellence (slightly adapted by the Cropley and McLeod, 1986)

Gardner's Theory of Multiple Intelligence

Gardner (1983) proposed a theory of Multiple Intelligence rather than a single intelligence. Seven distinct intelligences such as linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, inter-
personal and intra-personal are described in this theory (Hatch and Gardner, 1986).

According to this theory a person is gifted in one area and average or below average in others. This theory is similar to the Department of Education's Definition of Giftedness. This is a theory of intelligence which provides a useful basis for discussing the nature and identification of giftedness (Parke, 1989).

**Gagne's Differentiated Model of Giftedness and Talent**

Gagne (1985) tried to integrate the models on giftedness. He stated that:

"Giftedness corresponds to competence which is distinctly above average in one or more domains of ability. Talent refers to performance which is distinctly above average in one or more fields of human intelligence."

Gagne shows that underlying abilities, when coupled with the catalysts of environment, personality, and motivation, can result in the demonstration of high level performance in talent areas (Figure 2).

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**Fig. 2:** Gagne's Model of Giftedness and Talent
Thus, he combines the notions of multiple intelligences, personality factors, environment and talents into one model of giftedness and talent (Parke, 1989 p. 10).

A review of the definitions indicating that giftedness can be defined in innumerable ways points out that no definition is perfect (Gallagher, 1985; Maker, 1986). Hagen (1980) concluded that, since there is no universally accepted definition of giftedness it is probably not useful to try to differentiate between the concept of the gifted and the talented. He mentioned that other terms such as genius, prodigy and precocious are used less technically than giftedness and talent. Raina (1980) and Passow (1984) McLeod and Cropley (1989) indicated that a review of definitions and procedures for the identification of the gifted around the world reveals that intellectual giftedness still dominates concepts of giftedness.

Academically Talented or Gifted

Although in the above discussion the definition of giftedness directly or indirectly refer to the academically gifted or talented, the specific definition which is to be the basis of this research work has been given by Mcleod & Cropley (1989). They defined it as cluster of properties - rapid learning, effective storing of learned material, effortless location of stored information, skillful application of the already known, thirst for new knowledge, quick adaptation of the already learned in the light of the
new. These properties manifest themselves in unusually effective participation in class-room, high grades and outstanding scores in standardized tests etc. In real life this quality manifests itself in intellectual capacity and curiosity, inventiveness and productivity and in outstanding achievement in academic causes - science, mathematics, humanities, arts and language.

Prevalence of Giftedness

The prevalence of giftedness is a function of the definition chosen. Giftedness has been defined statistically in terms of the top centile of the distribution curve. At the conservative end, Terman & Associates (1926) and Pegnato & Brich (1959) held that the "top 1 percent" level in general population is gifted. Laycock (1957) advocated 5 percent of the child and youth population as mentally gifted. The National Education Association Bulletin (1960) considered those students to be talented who fall within the upper 15-20 percent of the secondary school population. Marland (1972) has restricted gifted children to 3 to 5 percent of the general population. Renzulli (1982) argued convincingly that the assumption the 3 to 5 percent of the population is gifted is needlessly restrictive and may result in many potentially gifted students' contributions being overlooked. He suggested that 15-25 percent of all children may have sufficient ability, motivation and
creativity to exhibit gifted behaviour at some time during their school career. Renzulli (1975) also argued that the percent and IQ level of total population is as follows:

Table 1

<table>
<thead>
<tr>
<th>Percent</th>
<th>No. of pupils</th>
<th>IQ Level</th>
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<tbody>
<tr>
<td>3</td>
<td>100</td>
<td>137</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>130</td>
</tr>
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<td>100000</td>
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<tr>
<td>1</td>
<td>1000000</td>
<td>180</td>
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</table>

Galbraith (1983) argued that 5 percent of the population is gifted and he also believed that everyone is gifted in some ways. Eighty-two percent of experts on the gifted and talented in the USA mentioned that the gifted are 5 percent or less of the population (Raina, 1991).

The present study making use of standardized tools and different reports mentioned above, has defined gifted students as 5 percent of those falling in the upper 10 percentile of both general intellectual ability, academic achievement (composite and specific) and also rated as exceptional in class-room performance by teachers of high school population.
Characteristics of the Gifted

Earlier there prevailed a stereotype of the gifted as physically weak, socially inept, narrow in interests and prone to emotional instability and early decline. In fact, now it has been demonstrated that gifted children tend to be superior in every way-in intelligence, in emotional stability, even in moral character, the danger now is a developing stereotype of the gifted child as "super human", as some one immune to ordinary frailties and defects (Hallahan & Kauffman, 1991).

It is essential for educators to know the real characteristics of gifted and talented students. From this information, they can begin to observe students in a more objective manner. Any one quality or a cluster of qualities should be enough to indicate that the student merits further investigation for different programming. The lists are best used to give teachers general guidelines for observation and consideration with which they can begin to view students as being or potentially being of exceptional ability. These characteristics are discussed briefly as follows:

a) Physical Characteristics: The gifted students in comparison with average students are heavier at birth and they attain early maturity in different limbs and begin to sit and walk two or three months earlier than the average children (Galton, 1869; Terman, 1925;
Hollingworth and Taylor, 1924; Burt, 1962). They tend
to be tall and heavy and maintain a high ratio between
weight and height (Hollingworth, 1926).

The above characteristics may be largely the
results of relatively higher standard of diet, medical care,
and general environment. In fact, one study comparing
siblings with widely varying IQs found no significant
differences on measures of physical variables (Laycock &

b) Intellectual Characteristics: Witty (1951) of the basis
of the findings of her study of 100 gifted children
enumerated the following intellectual characteristics
of the gifted child:
1. Has a large vocabulary and uses it correctly.
2. Uses phrases and sentences at an early age and has
an ability to tell and reproduce stories.
3. Has an interest in books and later enjoys study of
atlases, dictionaries and encyclopaedias.
4. Is interested in calendars.
5. Has abilities to read earlier than that of an
average child.
6. Has a capacity to concentrate longer than most
children.
7. Has an early discovery of cause-and-effect
relationship.
c) **Cognitive Characteristics:** Parke (1989) reported that cognitive characteristics of the gifted i.e. those characteristics that involve the ability to think are as follows:

1) An advanced ability to manipulate symbols.
2) Unusual ability to remember.
3) Large storehouses of facts.
4) Unusually deep levels of comprehension.
5) Seeing generalization readily.
6) Advanced ability to concentrate.
7) High levels of curiosity.
8) Ability to learn quickly.
9) Varied interests.
10) Uneven cognitive ability.

d) **Learning Characteristics:** Dunn & Grigg (1985) report that learning styles of gifted students, when considered as a group, can be characterized by the following descriptors: "(a) independence (self learners); (b) internal or external control; (c) persistence; (d) perceptual strengths; (e) nonconformity; (f) task commitment; and (g) high self motivation". They further comment that these categories of behaviour will vary with individual students and can only be used as indicators of group tendencies.
e) **Affective Characteristics**: Parke (1989) has described affective characteristics, that involve students' feelings, emotions and personalities, as follows:

1) sensitivity to themselves, others and their environment.
2) preference to be with adults or older children.
3) intensity.
4) perfectionism.
5) leadership ability.
6) moralistic
7) resourcefulness
8) advanced sense of humour.

f) **Social and Emotional Characteristics**: Terman & Oden (1947) and Scheifele (1953) reported that the gifted show relatively less nervous disorders as compared with others. Gallagher and Crowder (1957) found that the gifted and highly intelligent children had difficulty in adjusting to the regular classroom situation academically, intellectually, socially and emotionally. Children at the school level were included in their studies. Though generalization was difficult because of extreme individual differences, however it was concluded that:

1) a sizable minority (29 percent) seemed to be adjusted as well as could be expected in a regular classroom setting.
2) relatively few could be considered to have serious academic, social or emotional difficulties.
3) minor personal problems which hampered total adjustment potential.
4) teachers rated them favourably in all variables except
creativity and leadership. v) and older children had more problems of intellectual rigidity than younger children, etc.

Jareeky (1958) described the characteristics of the socially gifted adolescents whom he studied as follows; they are physically attractive in appearance and accepted as equals by both peers and adults; engage in constructive social enterprises and are often arbiters and policy-makers; and non-defensive in their behaviour, are hardly free from obvious emotional tensions; have enduring relationship. Their friendships are not subject to rapid turnover. They have stimulating positive, productive behaviour towards others; handle difficult situations with intelligence, humour and insight.

Delisle (1986) in his article on the emotional characteristics and problems of gifted adolescents has attempted to find some characteristics common to the gifted population that may serve as contributing factors to emotional and adaptive problems. Perception of failure for example is far different in the gifted than the non-gifted adolescents. Perfectionism is the motto and slogan of gifted children and it becomes a permanent trait of these children. If perfection is not reached than these children face emotional distress and related problems. Another closely related factor which may lead to emotional and social problems is the societal expectation which leads to the
formation of the characteristic of responsibility but if they fail to come up to the expectations of the society they will blame themselves and may exhibit social and emotional maladjustment characteristics. A final area of emotional concern indicated in the above article is the frustration that can result from a state of powerlessness in the outcomes of situations and events. Thus self and societal expectations to achieve may lead to the formation of emotional and social characteristics of gifted students. Callahan (1981) mentioned that in general, the satisfactory pattern of personal, social, and emotional adjustment have been confirmed in studies of the gifted.

g) Motivational Characteristics: Motivational characteristics based on research compiled by Renzulli (1978) are as follows. A gifted child:

1) becomes absorbed and truly involved in certain topics or problems.
2) is easily bored with routine tasks.
3) needs little external motivation to follow through in work that initially excites him/her.
4) strives toward perfection; is self critical; is not easily satisfied with his/her own speed or products.
5) prefers to work independently; requires little direction from teachers.
6) is interested in many "adult problems" such as religion, politics, sex, race.
7) stubborn in his/her beliefs.
8) concerned with right and wrong, good and bad.

In a series of studies, Male and Perrone (1979a, 1979b, 1980) studied personal characteristics of academically gifted high school students. Students, parents and teachers rated them on personal checklists and items on which all the three (students, parents and teachers) reached consensus were put to cluster analysis. Six clusters of personal characteristics were found, three of these clusters included behavioral descriptions that reflect attributes of achievement motivation. The three clusters of characteristics indicating achievement motivation were thought process, task persistence, and goal orientation. The second triad cluster includes attitudes and characteristics that indicate sense of personal potency. (Cited in Perrone, 1986)

Nowicki and Strickland (1973) had earlier reported that although gifted elementary school children do not possess the need to achieve, social awareness and effectiveness, these characteristics become evident when they reach middle school. High achieving students thus are more likely to attribute
both positive and negative academic outcomes to internal factors (ability and effort) which enhance their perceived potency of self (Rotter 1966). The importance of self-concept of gifted students in context to achievement motivation and attribution is apparent and forms an important characteristic of these children.

Clunkenbeard (1989) examined 67 gifted students of 7th and 8th grades who responded to a scenario in which a student was successful in either a competition (high nAch) or non competition (Low nAch) individualistic situations. The gifted student perceived greater continuing motivation: attribution to success to efforts; learning and long range goals for the students in scenario. The study revealed both achievement motivation in terms of some long-range educational goals and internal success attribution as characteristics of gifted descriptions of situations.

More recently Hallahan & Kauffman (1991) in their discussion on characteristics of gifted have also mentioned their educational and occupational characteristics.

h) **Educational Characteristics**: Gifted Children are far ahead of average children in academic achievement. Most learn to read easily and many of them are taught to read by their parents or teach themselves before they
Many are more advanced in reading than in areas that require manual dexterity, such as writing and art and some more advanced in reading, than in maths, which depends more on sequential development of concepts and skills. Most gifted children like school and love to learn (Gallagher, 1985).

i) Occupational Characteristics: Gifted people tend to enter occupations demanding greater than average intellectual ability, creativity and motivation. Most find their way into the ranks of professionals and managers and a high proportion distinguish themselves among their peers in adulthood. Occupationally, as well as educationally, they are winners (Terman, 1926; Terman and Oden, 1959; Gallagher, 1985).

Earlier Terman (1919), Hollingworth (1926), Witty (1940), in their reports about gifted children said that they are proficient in all fields of education. The age factor and their sex do not matter much. They are good in reading, language usage, arithmetical reasoning, science, literature and arts.

Kerr and Colangelo (1988) collected data on occupational characteristics of students. They found that only a small percentage of mediocre and highly talented students prefer liberal arts to vocational majors. They mainly choose engineering and health sciences. Out of 196 choices of college majors, 50%
went for only 3 categories engineering (25.7%), health science (12.3%), physical science (10%), social sciences (9.3%) and the 9.2% were left undecided. The talented students were not interested in agriculture, trades and home-economics. Only 0.2% choose agriculture, 0.3% trades and 0.1% home-economics. Foreign languages, letters and social occupation were the areas which they really rejected.

Engineering was chosen by nearly one-third of the male students (32.0%) but only by 9.9% of the female students; biological sciences attracted 14.1% of the female students but only 3.9% of the male students; and physical sciences attracted 11.1% of the male students and only 0.8% of the female students.

**Identification of Gifted**

The process of identification is purpose based in nature. Why should the gifted and the talented be identified? There are many possible answers to the question but one remains paramount. It is important to determine who the gifted and talented students are in order to provide growth programmes that are appropriate to their needs, abilities and interests (Parke 1989). Students who exhibit exceptional ability in any area may form part of a talent pool. They can be drawn upon to find specific programmes for nurturing and guiding their talent to be developed to the maximum.
The recommended procedure for identification of gifted students involves two steps (1) screening and (2) identification. Screening is conceived as a procedure for looking for potential that might be gifted and require specialized programmes. A wide range of data is gathered and a talent pool is established which is further subjected to indepth study. The instruments used for screening are IQ tests (groups), achievement tests/grades and awards. The aim of identification is to gather in-depth data about the pool of screened talents and to match students to different programmes and make decisions for their placement. The instruments used for identification are criterion-referenced tests, individual IQ tests, product portfolios and auditions.

The limitations of any singular assessment of a child have led to recommendation of multiple-assessment techniques for screening of the gifted. The most widely used and studied screening techniques for the academically gifted are mentioned by McLeod and Cropley 1989 and are as follows:

**Achievement tests**: No identification instrument acts like a crystal ball, i.e., it does not predict the future without any reference to the past. Past attainment is the best single predictor of future achievement, assuming that the nature of the future learning task and the circumstances in which it is carried out are essentially similar to those of
the past, as has been known for many years (Gallagher, 1985). In addition they are designed to measure primarily the knowledge and comprehension level of achievement. Care must also be exercised in interpreting the results of achievement tests.

**Intelligence tests**: Most often for screening purposes, group culture free test is preferred to the rest. Intelligence tests can be cross classified into four main types. They may be individual or group tests and they may be verbal or nonverbal. Performance on an intelligence test is less affected by school learning than is performance on an achievement test. Thus, if identification were by intelligence test only, there would be a tendency for some children to be identified to appear to possess unrealized academic potential. There is a likelihood of a reported excessive number of false positives among children identified on the basis of intelligence test performance.

A culture free test is one which is as appropriate for children raised in one particular culture, as for those from another culture which is quite different. There is conflicting evidence about the claims of tests which are said to be culture free. However, the average performance of Inuit (Eskimo) children on the Raven's Matrices test has been found to be comparable with that of the Scottish children on which it was originally standardized (Jensen 1981).
Creativity Tests: There is conflicting evidence about the reliability and validity of creativity assessments, and there is only a modest correlation between the different methods of assessment. Some researches concluded that the available creativity tests to be inadequate in evaluating the construct known as creativity (Crockenburg, 1972; Nicholls, 1972, Renzulli, 1978). McLeod (1972) obtained intercorrelation between different methods of assessing creativity which showed that there was a lack of significant relationship between demonstrated fluency. Nevertheless, a child’s responses to a test designed to measure factors such as fluency of ideas can provide useful qualitative insights that might otherwise be difficult to obtain.

Teacher Nomination: The teacher is in the most advantageous position to identify a student with outstanding ability or special talents, and teacher opinion should certainly be sought to augment and check other identification procedures. However, a number of problems arise if identification relies on teacher nomination alone. Accepting an IQ 136+ as the criterion for giftedness the teachers’ prediction correlated about 0.65 with the IQ criterion which is statistically highly significant (McLeod & Cropley, 1989).

Teacher Ratings: Teacher’s ratings of students are a potential improvement over teacher nomination. An extensive study by Pedulla, Airasian and Madaus (1980) found that
there is only moderate correlation between teacher rating and test results. Denton & Postpeth (1985), reporting on a study of teachers in the UK, concluded that they are capable of identifying unusually able youngsters in their classes. However, it is necessary for giftedness to be defined in terms of specific traits or characteristics. In the present study, teachers' nomination forming part of a programme for the gifted and talented (Parke, 1989) was used. Teachers' nomination also consists of nine behavioural characteristics of gifted children including, motivation, curiosity, learning, persistent, memory, humour etc. The teachers who were familiar with the students noted each characteristic on a 0-3 point scale based on frequency of the characteristic.

**Rating by Peers and Parents**: On the analogous assumption that students are in a position to gain insights into their fellow student's abilities and leadership qualities which are unavailable to teachers and other adults, the use of peer nominations or ratings has been considered (Martinson, 1975) but apparently little used. If teachers are in a more advantageous position than standardized tests to appreciate some of the more subtle signs of giftedness, parents are in an even more advantageous position to detect abilities in their own children (Jacobs 1971).

**Biographical Analysis**: As has already been emphasized, academic excellence involves not merely intellectual ability in the IQ sense, but other cognitive traits, as well as a
range of non-cognitive factors such as motivation, determination, self-confidence and the like. To a considerable degree these are the traits Renzulli (1978) emphasized, when he mentioned the importance of "task commitment" Cropley (1988) summarized these characteristics under the heading 'personal preconditions'. The basic idea underlying the application of biographical analysis to the identification of potential academic excellence is that children who have already displayed appropriate personal preconditions in their behaviour are likely to continue to do so. Thus a past history of high achievement is also highly relevant for identification of academically gifted children.

**Personality Assessment**: Teacher assessments are most useful when they concentrate on special traits and characteristics such as high attention span, persistence, enthusiasm, self-confidence. These can be seen as aspects of the personality which are necessary for the realization of potentials. This view of giftedness as encompassing not only ability, but also personality opens up further approaches to identification through the application of existing personality scales. Special instruments have been constructed specifically for use with unusually able individuals. Mönks, van Boxtel, Roelofs and Sanders (1986) used measures of general personality traits of self-image,
curiosity and locus of control as part of a battery of tests for identifying unusually able students. The Scale for Rating the Behavioural Characteristics of Superior Students (SRBCSS) developed by Renzulli, Hartmanon and Callahan (1971) is for identification of the academically able.


a. Correctly identified as exceptional (i.e. true positives)
b. Incorrectly identified as exceptional (i.e. false positives)
c. Correctly classified as non-exceptional (true negatives)
d. Incorrectly classified as non-exceptional (false negatives)

The task of identifying the gifted and talented is difficult and can paralyze educationists if the pitfalls of these techniques are not known. Passow (1985) rightly remarked that no single technique is foolproof: a) achievement scores lead to the lowest proportion of false positives, but b) may produce a large number of false negatives; c) Intelligence tests go beyond achievement to some degree and are influenced by opportunity and motivation, and lead to increased number of false positives; d) other techniques like creativity expand the criterion further but the limitations of creativity tests may affect the selection of academically gifted students. Teacher and peer nominations tend to give more emphasis on personal and social conditions and exceptionality.
The crucial point is that all identification procedures have defects and weaknesses. However, multiple criteria and assessment are the answer to overcome shortcomings of individual screening techniques of not only the present level of achievement but also the broader conditions of identifying potential for academic excellence. Thus the present study, kept in mind the advantages of multiple criteria and assessment techniques, the academically gifted and used three criteria to identify.

- Exceptional academic performance on
  a. Composite
  b. Science & Maths
  c. Intellectual ability on non-verbal intelligence test.
  d. Exceptional class-room performance as rated by teachers.

The scores on each selection criterion were given equal weightage by taking exceptionally high cut-off scores for the three criteria separately and then converted into identification matrix as proposed by Cook and Baldwin (1979) (Chapter of Method). This procedure involves the weighting of various identification data according to the various of the school system. In the present study this procedure was adapted to make sure that only those academically gifted students are identified who are simultaneously exceptional in all the criteria, i,e, academic achievement, intelligence and class-room performance (as rated by teachers).
Factors Enhancing or Inhibiting Giftedness

a) Genetic and other biological factors, such as genes, nutritional and neurological contribute to the determination of intelligence. At first Galton (1874) found that superior mental ability was due to hereditary factors. Terman (1916) and Plomin (1989) confirmed this opinion. Plomin also supported the view that heredity plays an important role in intelligence when he said "ask not what is heritable, ask what is not heritable". Some researchers attribute as much as 70% of variance in IQ to genetic factors (Byseck, and Laycock, 1979). Further, even the strongest "hereditarians" acknowledge the great influence of environment on the development of intelligence (Laycock, 1979).

b) Cultural and environmental factors: such as families, schools and communities obviously have a profound influence on the development of children’s abilities. Stimulation, opportunities, expectations, demands and rewards for performance affect children’s learning. William (1974) among others, found correlations of .61 between IQ and environmental stimuli in USA. Atmosphere in the home includes mutual support, democracy, achievement-oriented atmosphere, level of tension and the sense of security that the family unit affords its members. Bloom (1985) in the USA emphasized
that the level of achievement consistently demanded by parents from their children has a positive relationship with early evidence of high intelligence. Caldwell (1976) demonstrated a significant positive correlation between a loving and non-restrictive atmosphere and intellectual development. They found an atmosphere of emotional security to be one of the best predictors of academic achievement. Other factors such as parent's academic achievements (Hess and Shipman, 1965), diversity of parents' present interests (Vernon, 1979) and parents' life circumstances, school and communities play an important role in intellectual performance. It may be concluded that "neither environment nor genetics can be entirely responsible for the performance of gifted or retarded individuals. Genetic factors apparently determine the range within which a person will function and environmental factors will function in the lower or upper reaches of that range" (Hallahan & Kauffman, 1991)

c) **Gender Factors**: Findings show that more males than females are considered gifted and creative. Available research points more clearly to social and cultural expectations (Corony, 1989; Eceles, 1985). Gifted girls face a unique set of challenges across their lifetimes that may lead to problems at home, school, society or
with their friends. Educators report that there are many females candidates for programmes of the gifted in the early grades, but the number decreases substantially in the middle school or high school years. During adolescence they become more socially aware, they often find there is pressure to become "more like everyone else" which is translated as being less smart (Parke, 1989). Although circumstances are improving, some gifted girls find that the expectations of society still may lead to conditions in schools that do not encourage their progress. Some gifted girls report being discouraged from taking classes in mathematics and science that will prepare them for more advanced work in their later years. Thus reports clearly indicate that even in Western countries women are faced with restrictions in gifted performance.

d) **Gifted Underachiever**: Most gifted and talented students display their abilities, but there are students who for some reasons perform at levels that are below their capabilities. Whitmore (1985) mentioned that possible causes of underachievements are as follows: Lack of motivation due to inappropriate restrictions in their learning environment, conflict between student's cultural values and programme, lack of environmental nurturance, specific disabilities,
specific or general academic skill deficiencies in subject matters, developmental delays or chronically bad health.

e) **Early Identification and Programming**: There is urgent need for parents and educators to identify the gifted and talented students at an early stage of life. The primary problem in early identification is the lack of reliable identification procedures. Intelligence test scores are notably unreliable for young children in preschool children (Jackson, 1978). In addition, parent assessment of these children had long term predictable validity equal to large intelligence test scores. Despite these problems early identification and intervention are strongly recommended (Clark, 1979; Robinson, Roedell & Jackson, 1979).

f) **Guidance and Counselling Provisions**

There are some frequent misconceptions about academically talented students. Some reports indicate that they are usually able to learn large amount of information. Also, it is assumed that they possess the strategies necessary to be able to consider their interests, abilities and values as part of educational goals, career planning and personal guidance (Parke, 1989). Perrone (1986) reported that nearly all the gifted students were unaware of their actual educational and vocational performance, because
of their varied interests. Thus counsellors have to create new guidance strategies when counselling these students. They can encourage the intellectually gifted students to keep their options open well into the college years (Sells, 1978, Parke, 1989).

There is some evidence that more talented female students experience difficulty in defining their plans and they have difficulty in taking advanced courses in mathematics and science. They are pressurised by social expectations and restrictions (Parke, 1989). Thus career counselling aimed at this group might be an excellent way of meeting the special needs of talented female students (Kerr & Collangello, 1988).

Gifted students experience difficulty in making the transition from excelling in school to being effective in their family and work setting. Productive adult behaviour which includes self-direction, concern for the welfare of others, social progress, discovering and defining problems is what counsellors need to encourage in gifted and talented young people (Perrone, 1986).

As regards the above mentioned considerations, guidance and Counselling would enhance the capacities of academically talented students in terms of their educational fields, vocational pursuits, personal guidance and help them to better their adult roles and utilize their potential to the maximum.
"Need for achievement" or "achievement motivation" (Murray, 1938) "self-actualization" (Maslow 1954), "self-sentiment" (Cattel 1965) or "efficiency motive" (McClelland 1989), is considered to be deep-rooted and fixed in human nature and the frequency of it in a person reflects the behaviour of an individual to strive, to accomplish, do his best and to excel others in performance.

Murray (1938) defines need for achievement as "the desire or tendency to do things as rapidly and/or as well possible". It also includes the desire to accomplish something difficult, to master, manipulate and organize physical objects, human beings or ideas, to overcome obstacles and attain a high standard, to excel one's self, to rival and surpass others, and to increase self-regard by successful exercise of talents. McClelland (1965) defines achievement motivation (nAch) as "the desire to excel some standard of behaviour; it is an effect in connection with evaluated performance, in which competition with standard of excellence is paramount". Recently (McClelland 1989) called achievement motivation as "efficiency motive". He believes that the future of any community, depends upon the present level of achievement motivation of its pupils.

Individuals with high nAch have the characteristics of risk-taking, fore-seeing future possibilities,
independence, and unbridled ambition (McClelland 1989). Some of the important characteristics are as follows:

1. **Excellence**:

   Individuals high in nAch are more likely to seek out information and to find better ways of doing things. Heckhausen (1967) defined nAch as "the striving to increase, or keep as high as possible one's own capability in all activities in which a standard of excellence is thought to apply and where the execution of such activities can, therefore, either succeed or fail. McClelland (1953) described that nAch is a desire for excellence, not so much for the sake of social recognition as for attaining an inner feeling of personal accomplishment.

2. **Preference for Moderate Risk**:

   Individuals high in nAch choose moderately difficult tasks (Atkinson, 1957). The strength of preference for various tasks is the joint function of the motive to achieve, the expectancy or probability of success (Ps) and the incentive value of success (Is). It is assumed that the value of success is directly proportional to its difficulty. Weiner (1980) argued that students with high nAch choose moderately difficult tasks as such tasks are more diagnostic of how well they are doing.

3. **Energetic and Innovative**:

   Doing something better often implies doing it differently from before. It may involve finding a
different, shorter, or more efficient path to a goal, (McClelland 1989). Individuals high in nAch are more restless and avoid routine. They are more innovative. They tend to travel more and are more likely to migrate (Kolp, 1965).

If individuals with high need achievement succeed at a moderately difficult task, it will become easier and therefore less attractive to them, so they will move on to doing something else, or search for variety or new ways of doing things.

4. **Sense of Responsibility** :

   Individuals high in nAch. would prefer being personally responsible for a performance result, because only under such conditions could they have satisfaction from doing something better. According to Horowitz (1961), "subjects high in nAch. choose to take personal responsibility in situations of moderate risk significantly more than those low in nAch. McClelland and Watson (1973) also support this view.

5. **Need for Performance Feedback** :

   Theoretically, subjects high in nAch. should prefer working in situations where they get feedback on how well they are doing. Several different types of studies have confirmed the importance of performance feedback to them. French (1958) found that as contrasted with the subjects low
in nAch. those high in nAch. worked more efficiently after performance feedback than after affiliative feedback. (McClelland 1989), Bartman (1965) have shown that subjects high in nAch. profit more under feedback conditions than subjects low in nAch.

6. Persistence:

Subjects high in nAch. would persist longer in working at any task. French and Thomas (1958) found that 47 percent of the subjects high in nAch. persisted up to the time limit in working at an insoluble task, as compared with only 2 percent of those low in nAch. Feather (1961) stated that subjects high in nAch persist longer when they begin to fail at an easy task than when they fail at a very difficult task. On the other hand, a hard task with only 0.05 probability of success will have little attraction for subjects high in nAch.

7. Social and Occupational Consequences of High nAch:

Mahone (1960) argued that high need achievers are likely to be more realistic in setting occupational aspirations for themselves. McClelland (1989) also elaborated on some of the social consequences of a strong need to achieve. The characteristics of high nAch subjects have a significant effect on the performance and the way in which people behave in real life. A considerable amount of research was focused on this issue and concluded that the nAch is a key factor in economic growth. Men high in nAch
are oriented positively towards work (Veroff 1982), are more satisfied with their jobs and find them interesting. They tend to move upward occupationally, are more interested in and able to do well at business and consequently leading the country towards industrialization and economic development.

Negative Aspect of Achievement Motivation

Fear of Failure

Atkinsons (1958) contributed to an understanding of a negative aspect of achievement motivation - fear of failure. Individuals classified as low in nAch and high on anxiety were labelled as high on failure. In a performance situation these individuals seek to do that which will reduce the experience of failure. These individuals avoid moderate risks and show preference for extreme probabilities of success, they are defensive goal setters, high on hostile press (fear of rejection) and are susceptible to positive suggestions.

Fear of Success

Data collected with a projective situational instrument suggests that women may develop fear of success motive" that acts as an inhibiting failure in achievement motivation. This phenomenon may account for the lowered arousal of achievement motivation in females when placed in competitive situations. The origins of the fear of success are not clear. It appears, however, that many young girls
and women have been acculturated to the extent that they fear they will be rejected socially or be considered unfeminine if they appear to be too bright or too competent. It is postulated that the motive to avoid success is greatest for women of highest ability and that the conflict between achievement motivation and fear of success may create anxiety, which in turn reduces success (Horner, 1972). High levels of anxiety may also be detrimental to learning and creativity. It thus appears that achievement motivation must be strong, with a concomitant absence of motive to avoid success, in order that women seek actualization of their potential (Callahan 1983), Horner (1971), Singh and Vanvaria (1977), found that girls with "fear of success" tend to be self-centered, avoid risks and have a somewhat lower interest in masculine activities.

LOCUS OF CONTROL

The concept of locus of control, although relatively new (Rotter, 1954), has received considerable attention in the study of individual differences (Lefcourt, 1976; Phares, 1976). Locus of control refers to a person's beliefs about control over life events. Some people feel personally responsible for the things that happen to them. These people are labelled internals. Others feel that their outcomes in life are determined by forces beyond their control (e.g. fate, luck, and other people). These people are labelled as externals. Obviously, most people fall
between the two extremes, forming a continuous distribution of locus of control beliefs. Locus of control is thought to be a relatively enduring dispositional characteristic, although certainly modifiable through experience.

Rotter (1966) reflects that as far back as 1899, social scientists were interested in this concept, though their concern was primarily with groups and societies rather than individuals. In this century, Piaget's notions of causality, Angyal's concept of autonomy, the inner other directed man of Reisman, White's constructs of competence and effectance, (cited in Jaswal 1989) and other concepts like self confidence, ego strength, mastery etc. have been used to denote the degree to which man is able and believes himself to be capable of controlling events in his life space (Lefcourt, 1966). A recent concept "perceived control" which was identified by Phares (1976), is being used to designate locus of control as this psychologist feels that the term 'perceived control' is more appropriate than locus of control.

Review of literature of the internal-external locus of control reveals that a typical internal is one who actively comes to grips with the world. Compared to an external, an internal is resistant to social pressure and dedicated to the pursuit of excellence. External individuals can be described as a powerless and fatalistic.
The construct of locus of control is based on the social learning theory of personality (Rotter 1954). The three basic constructs in Rotter’s Social Learning Theory are Behaviour Potential, Expectancy and Reinforcement Value. In this theory of social learning a person’s actions are predicted on the basis of his values, his expectations and situations in which he finds himself. There is an equal emphasis upon values, expectancy of reinforcement and situational specificity that makes Rotter’s theory unique among learning theories which, more curiously, accentuate value or motivate and of predictive formules.

The concept of locus of control is being widely used for explaining performance at different levels of academic work and also being extensively studied and experimented for bringing in change at the level of performance by changing the locus of control orientation.

**VOCATIONAL CHOICE**

Work is one of man’s most significant task of life occupying almost half of one’s adult life. With the advancement of technology and science, many changes in the past few decades have occurred both in the area of attitudes toward work, work force and the structure of world of work. An increasing number of people view work as a means of personal expression of growing, building self-esteem and satisfying personal needs (Rickey & Therese, 1990). There is also a growing recognition all over the world that
prosperity and advancement of a country largely depends on the maximum and effective utilization of their human resources.

The world of work has expanded in different directions making vocational choices and adjustments a difficult task for the youth. Rickey and Therese (1990) in a nationwide study of eleventh grade students reported that 3/4th of the students needed help with career planning. There is an ever-increasing guidance and aid for making effective and satisfying vocational decisions and adjustments leading to personal satisfaction, happiness and the growth of the nation.

Occupational choices reflect how individual see themselves and their possibilities in the world of work, as also the choices which are shaped by individuals' experience within their environments (Gottfredson 1981). He further proposed that individuals often make compromises when making actual choices. Personal interests and values are sacrificed first and perceptions of gender-appropriate occupations are compromised with as a last resort. Von draok (1990) viewed study of career choice behaviour as a study of a developing individual within the changing and complex context of his inherent structure, and the uniqueness and interaction of the two over time. Cook (1991) mentioned that through occupational choice individuals communicate basic messages
about how they see themselves, what is important to them, how they perceive the possibilities open to them and how others perceive them as well.

Vocational counsellors needed theoretical orientation (cultural specific), career counselling strategies and vocational tools to carry out their functions. Vocational psychologists provided them with a number of theories related to counselling strategies and tools to facilitate their practices. The history of vocational psychology goes back to Frank Parsons (1909), who proposed a trait and factor theory of occupational choice. After the work of Parsons, there was a dull period in the history of vocational psychology but again there was a spurt in formulation of theories of vocational choices, by different psychologists the latest being Gottfredson's Model (1985).

In a recent book of 'Career Choice and Development', Brown; Brooks and associates (1990) have tried to update and explicate major theoretical approaches to understanding career behavior of individuals. The book also provides empirical support and has made an explicit effort to discuss application of theories for career counsellors.

The theories have been presented and compared on four dimensions, that is, psychodynamic approaches emphasising the role of personality, needs, values, motivation in career choice (Roe, 1957; Super and Bacharch, 1965; Sup et al., 1973; Buros, 1972; O'Neale, 1977; Dreyfuss, 1977; Brown et al., 1980; Super, 1980; Davis, 1984; Dreyfuss, 1985; Brown et al., 1990).
Developmental approach emphasising the process of development or each stage of life for the crystallization of vocational choice (Super, 1957; Tideman & O'Hara, 1963; Ginzberg, 1972). The third dimension on which these theories have been proposed and compared is the sociological in which the role of environment (culture, subculture, community, school, family) is discussed for shaping career choice and adjustment (Super, 1957; Bachrach, 1957, Lipsett, 1962). Finally, the trait and factor approach has been proposed which focuses on personality traits (aptitude, abilities, interests) and their relationship to traits necessary for a particular occupation (Miller 1974). O Sipow (1990) proposed that there are remarkable similarities in career choice approaches. All the theoretical approaches recognise the importance of biological and environmental influences but not in same degree. All the theories also focus on prediction of person occupation fit but differ in their emphasis on actual choice versus the process of choosing.