CHAPTER I
INTRODUCTION
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Importance of Giftedness

A developing democracy often makes the mistake of concentrating on the expansion of education alone and providing equal opportunities to all. But equality of opportunities does not always happen to be suitable to or appropriate for every individual for the term 'equal' often loses its true connotation in practice. It often turns out to be 'similar' or even 'identical' opportunities for all. Thus, a misunderstood democratic philosophy of education often results into a system of education designed for the average child. Such a system ignores the scientifically established facts about individual differences in learning and turns out to be a miserable failure in meeting the needs of the individuals at the extremes of the distribution of abilities i.e. the backward and the gifted. The needs of the backward children in India have at least been recognized though not satisfactorily provided for. But the gifted often grow even without being noticed. This results into a huge national waste of talents and a consequent dearth of leadership. This is all emphasised by Bhatt, 1973.

A similar observation is made in the report of the IEC (1964-66, P.240) in the words: "A dearth of competent and trained manpower is now felt in nearly every branch of national life, and is probably one of the biggest bottlenecks to progress. Poor as we are financially, the poverty of trained intellect is still greater".

If the ultimate goal of a democratic society is to ensure a happier and more prosperous life for all, it becomes essential that full encouragement should be given to the talented. After all, the future advances which can ultimately lead to peace and plenty for all peoples are most likely to come from the efforts made by the gifted.
As our society heads into the twenty-first century, it can ill afford to continue its laissez-faire attitude towards the education of the gifted and talented. The study of society's need for high level personnel has shown a wastage of high potential. Many remain "unfulfilled" and learn to get by and settle for only partial utilization of their potential. This realization necessitates that the nation should become concerned about all of its potential human resources in each person.

Striving for excellence along with equity, is considered to be the only way to resolve the problem of social tension (Malhotra, 1989). In addition, manpower specialists have noted that countries may not be able to sustain economic growth, unless all the reserves of talent in the population are actively sought out and attracted into needed educational channels. Thus, the importance of identifying and fully developing the talents of young people, which is important in its own right, quite apart from economic needs, is reinforced by the imperatives of development (OEEC, 1960).

In view of this background the present study was taken up to study the future hopes and aspirations of gifted children i.e. their vocational choices and what type of personality pattern emerge in a particular family environment.

Importance of Giftedness Through the Ages

The development and utilization of a nation's human resources prove to be the best indicators of economic prosperity and social advancement. This principle was recognized by Plato, who observed over 2, 400 years ago that the state's gifted leaders are its most valuable asset. They are the ones who make economic and social progress possible. Without them - without the contributions of great minds, the ideas of original thinkers who stand out from the crowd, whose innovations and creative ideas advance the frontiers of knowledge - the world would, indeed, be a barren place. No less important than the conservation
of human resources for national and world welfare is the development of every young person's potential for the own self - fulfillment as an individual.

Genius knows no bar. And that is why, when the pages of biographies of famous personalities are flipped one is faced with more or less same type of spark of talents irrespective of language, nationality, culture, religion or time scale. But organised efforts to recognize gifted started only with the phenomenal work of Sir Francis Galton (1822-1911). His concern was with hereditary genius (1896) when he observed that distinguished persons, seemed to come from succeeding generations of distinguished families.

The next important contribution in this direction came in the form of development of psychological tests first for the mentally retarded and then for classifying individuals on the basis of 'Mental Age' through Binet and Simon (1905).

Terman's name is mentioned as the founding father of gifted child movement who contributed vastly in an understanding of their special characteristics, professional needs and career, dreams and failures.

Leta Holling Worth's special effort for gifted education till her death in 1939 was also a committed contribution in this direction.

Witty (1930) in the meantime, became a household name. His longitudinal study of 100 gifted children led to 'The Intelligence of Scottish Children' (1933) which created a lot of interest worldwide for gifted children.

The post sputnik era (1957) caused almost a talent hunt which was more for society's survival than for individual's growth and development. A vast literature in this field came out during a three year period (1956-1959) than in previous 30 years. Services for gifted and talented students, funded through monies from NDEA, escalated during the 1959-1963 period to an all time high.
A sort of love-hate relationship always existed for the education of the gifted children. A lot of criticism from public, so far as financing for it is concerned, always created obstacles in the movement to gear up.

Tannenbaum (1979) has described national concern for the gifted as being twin peaks of interest separated by a deep 12 to 18 years valley of neglect. The group of gifted and talented has been alternately embraced and repelled by the educators and laypeople alike.

The concern for gifted and talented took a turn and shifted to the concept of giftedness which expanded and became more inclusive, which is discussed in detail in the following section:

Concept of Giftedness

In an attempt to identify gifted children, intelligence remained and still is the sole criterion. It was Alfred Binet, the Frenchman along with Simon (1905) in an attempt to devise individual intelligence test which could measure different functions (verbal, non verbal) came into the field of test construction and contributed tremendously in this direction. According to Binets' test, highest 1% of the school population who had an I.Q. over 140 could be considered as gifted. The present modification of his test is known as Stanford Binet test of intelligence. But the IQ obtained from an intelligence test pertains only to mental functioning and conceptual thinking and sets up too narrow a definition of the gifted.

The trend today is toward broader definitions of giftedness, based on multi-dimensional traits and more comprehensive, elastic concepts of unusual ability and superior capacities; not only the 'good student' type but also the creative and original are included.

Renzullis' (1979) 'Three Ring Conception of giftedness' is quite a break through in that it gives a flavour to whole endeavours of program for the gifted
children. According to it, 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.

![Fig 1.1: Renzulli's Three-Ring Concept of Giftedness](image)

**Giftedness Defined**

A child is said to be gifted whose performance in a potentially valuable line of human activity is consistently remarkable.

As far as definitions of giftedness are concerned these are classified into different headings with respect to cognitive domains, personality traits and talents which and are detailed below:

1. **Cognitive Domains**

   According to Sumption and Luecking (1960), the gifted are defined as those who possess a superior nervous system characterized by the potential to perform tasks requiring a comparatively high degree of intellectual abstraction or creative imagination.

   According to Lucito (1963), the gifted are those students whose potential intellectual powers are at such a high ideational level in both productivity and evaluative thinking that it can be reasonably assumed that they could be future
problem solvers, innovators and evaluators of culture, if educational experiences are provided.

According to Marland Report (1971), gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities, are capable of high performance. Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:

1) general intellectual ability, 2) specific academic aptitude, 3) creative or productive thinking, 4) leadership ability, 5) visual and performing arts, 6) psychomotor ability.

According to Whitemore (1980), the intellectually gifted child is defined by the possession of superior ability in the area of cognitive processing. Simply stated intellectually giftedness can be defined within the cognitive domain, as an exceptional potential for learning along with outstanding ability to "assimilate, manipulate and utilize abstract concepts and factual information in problem solving.

The term gifted can be described in a number of different ways including (a) those who already have achieved outstanding prominence in an area; (b) those who have an extremely high IQ (e.g. above 130); (c) those who excel in art or music or (d) those who score high on tests of creativity. It can refer to those children with exceptionally high IQ to those who have creative talents or to those who achieve high on both dimensions (Sattler, 1982).

According to Tannenbaum (1983), giftedness in children is that it denotes their potential for becoming critically acclaimed performers or exemplary producers of ideas in spheres of activity that enhance the moral, physical, emotional, social, intellectual, or esthetic life of humanity.
Davidson (1986), defined giftedness as insight ability, a complex of three distinct psychological processes: selective encoding, selective combination and selective comparison.

According to Heller (1991), giftedness may be defined as the total of personal (cognitive, motivational) and socio-cultural requirements for learning and performance.

According to Clark (1992), giftedness is the result of appropriate enrichment and stimulation of the interaction between unique genetic patterns and the environment.

Feldhusen (1992) defined giftedness as a complex of intelligence(s), aptitudes, talents, skills, expertise, motivations and creativity that lead the individual to productive performance in areas or domains or disciplines valued by the culture and time.

2. Personality Traits

L'abate and Curtis (1975) viewed giftedness as a relative kind of behaviour in which a child exhibits unusual competencies, abilities, knowledge or skills by which he performs other specialized or generalised kinds of tasks requiring abilities beyond those of the average person.

According to Renzulli et al (1981), gifted children are those possessing or capable of developing this composite set of traits and applying them to any potentially valuable area of human performance.

3. Talents

DeHaan and Havighurst (1961) prefer to include all sorts of outstanding talent and aptitudes in their definition: Gifted children are those individuals from Kindergarten through high school age who show unusual promise in some socially useful area and whose talents might be stimulated.
The most accepted view is that the giftedness in young people is primarily a matter of special talents; the gifted child is one who is "specially talented" in music or art, in dancing or dramatics, or in a particular school performance, as in the case of a child who can do complex mathematical computations. (Hildreth, 1966).

According to Borland (1989), gifted children are those students in a given school or school district who are exceptional by virtue of markedly greater than average potential or ability in some area of human activity generally considered to be the province of the educational system and whose exceptionality engenders special - educational needs that are not being met adequately by the regular core curriculum.

According to Gagne (1991), giftedness corresponds to competence that is distinctly above average in one or more domains of human aptitude.

The above definitions may be cited as follows:

A person is said to be gifted if he/she has superior/ above average intellectual abilities, leadership qualities, physical abilities, artistic abilities, task commitment, self-concept, exceptionally superior performance, producers of knowledge, associated with `socially valued' areas of human endeavour and developed talent.

**Operational Definition**

**Giftedness**

Gifted may be defined as those who not only possess high general intellectual ability but also have superior academic performance, representing top 5% of the population.

**Average**

The average students may be defined as those who score on intelligence
as well as on academic subjects in between $M \pm 1$ S.D. They represent middle 68% of the population.

**Characteristics of the Gifted**

Teachers in schools/colleges still now feel that intellectually gifted are-more emotionally mature, more adaptable, self controlled, independent, responsible, cope more constructively with pressures'. Practically, children who conform to teacher's expectations, achieve high and seek recognition from the teachers are generally prized as gifted by most of the school teachers.

According to Renzulli (1975) the following characteristics are possessed by gifted children:

1. **Capacity for Learning**
   - accurate perception of social and natural situations.
   - independent, rapid, efficient learning of fact and principle.
   - fast, meaningful reading.

2. **Power and Sensitivity of Thought**
   - ready grasp of principles underlying things as they are.
   - sensitivity to inference in fact, consequence of proposition.
   - spontaneous elevation of immediate observation to higher planes of abstraction, imagination.
   - discrimination power.

3. **Curiosity and Drive**
   - mental endurance; tenacity of purposes; stubbornness
   - capacity for follow-through with extensive but meaningful plans.
   - curiosity about things and ideas.
   - intrinsic interest in the challenging and difficult.
boredom with routine and sameness.

Monson and Fukuni (1991) identified the following characteristics:

A. Cognitive Characteristics
1. Ability to manipulate abstract symbol system: e.g. language, mathematics, music etc.
2. Power of concentration: long term application and concentration in areas of interest; ability to focus on a problem for long period of time.
3. Unusually well developed memory.
4. Early language interest and development: precocious development in language and strong interest in reading at an early age.
5. Curiosity: strong desire to know and to understand how the world works.
6. Preference for independent work: has a natural propensity for working alone, wants to 'figure out' things on his/her own.

B. Affective Characteristics
1. Sense of justice: strong sense of human relationship, overall concern for others and a concern that world should work in a humane way.
2. Altruism and idealism: display a helping attitude towards others, they want to serve, to teach; high involvement with service organisation.
4. Early concern about death: early interest in understanding life cycles.
5. High energy levels:- have a rapid learning style during work and play.
6. Aesthetic sensitivity:- appreciation for "unity in variety".

Factors Affecting Giftedness

A variety of factors may be summed up in general as:

i Social Factors

The various social and emotional factors like basic trust, trust in others, trust in self, autonomy, initiative and self confidence.

(i) Basic trust:- Parents and environment recognize the child's needs, try to satisfy them, and succeed more or less in doing so.

(ii) Trust in others:- Parents and the social environment provide the child with his growing needs and comfort him when he needs it. Their attention and love reinforce the child's feeling that people are to be trusted.

(iii) Trust in self:- Parents and the social environment respond with interest and joy to the child's activities. Help is provided when needed. Safe but unrestricted environment is provided. This encourages new learning and acquisition of skills. Parents express delight with the child's new achievements. Trust in self is thus being built.

(iv) Autonomy:- Parents are willing and able to foster the child's independence and autonomy in his ventures to explore his world, while maintaining a safe and secure physical and emotional environment.

(v) Initiative:- Parents and family are willing to let the child discover and explore his environment and to be enthusiastic about and complimentary of the child's adventurous enterprises.

(vi) Self-confidence:- Parents provide the child with affirmation that the child is capable, is growing vis-a-vis herself/himself, that she/he is not compared with others.
II Motivational Factors
The factors like curiosity, mastery and competency learning, encouragement of unconventional learning, parents attitude and support.

(i) Curiosity:— Parents recognize the child's need to satisfy his curiosity in his world and all its wonders. Parents encourage the child to explore and provide opportunities and stimulation capable of satisfying his curiosity.

(ii) Mastery and Competency learning:— Parents provide the child with ample opportunities to try out things for herself/himself. The child's social environment provides her/him with continuous feedback that she/he can do things for herself/himself.

(iii) Encouragement of unconventional ideas and methods of learning:— Parents accept and encourage the child's creativity and unusual ideas and unconventional methods of accomplishing tasks and solving the everyday problems encountered by him/her.

(iv) Parents' attitudes and family support:— Parents have positive attitudes for achievement, yet accept the child's individual abilities, except him/her to do as well as these abilities enable him, accept with respect his/her achievements, but do not put pressures on him/her to accomplish the things he/she is not ready for or capable of.

III Personality Factors
The personality factors include self-concept, locus of control, need achievement and fear of failure, need affiliation, fear of success.

IV School Factors
The factors like curiosity, awareness and respect for individual interests, challenge, teacher's attitude, teacher support and classroom climate.

These are the factors responsible for facilitating or hampering giftedness.
As far as the factors that influence giftedness are concerned, family environment which consist of relationship dimensions, personal growth dimensions, system maintenance dimensions was taken up to study how the family environment affects giftedness. This was taken up with a view that it is in the family that personality of an individual is shaped and the influence of the family is subsequently and directly responsible for his/her decision making and leadership characteristics.

Identification of The Gifted

The Chief reason for identifying talent is to enable the individual view himself/herself and his world in a way that permits to accomplish his best—not only do his best, but be his best. There continues a vast and deplorable waste of human talent. Identification of gifted and the talent is hampered by the Darwinian attitude that those who were gifted would on their own emerge. The talent-will-win-out- theory is all but dead. Raina (1980) pointed out that identification of talent is full of dilemmas, contradictions and profound complexities. Unfortunately, evaluation and research on identification instruments and procedures continue to be rare in almost all countries.

There are two general approaches for identifying giftedness and talent.

First, there is the venerable practice of observing who stands out in our midst. We take note of novel behaviour, unusual accomplishment, and uncommon perspicacity in others. We elevate certain people to eminence on the basis of impressionistic, subjective interpretations of the anecdotal data.

Second, giftedness has been identified on the basis of a person's potential prominence. The practice of identifying giftedness retrospectively by eminence or prominence, remained there until the advent of mental testing which marked the shift from respective to prospective practice. Invention of psychological measurement late in the nineteenth century marks a significant
turning point in progress toward identifying giftedness.

According to Renzulli and Reis (1991), gifted behaviour can be developed in persons who are not necessarily those who earn the highest scores on standardized tests. This model also implies that an effective identification system must consider other factors in addition to test scores and these factors must be given equal weightage in the selection process. One can no longer just give up service to non-test criteria or believe that because tests yield numbers these are inherently more valid, than other procedures.

Fig. 1.2 The Renzulli's Identification System.

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<td>Nomination</td>
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<th>Non-test criteria</th>
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|                  | Step 3   | Alternative pathways-case study |
|                  | Step 4   | Special nomination case study safety valve No.1 |
|                  | Step 5   | Notification of parents. The welcome to the Talent pool letter |
|                  | Step 6   | Action information nomination safety valve No. 2 |

Renzulli and Reis (1992)

According to Marland (1971), a multiple identification criteria should be used while dealing with the gifted children. As for example:

1. Parental recommendation and judgement.

2. Peer evaluation and nomination.

3. Teacher evaluation and nomination.
4. Evidence of achievement.
5. Performance outside normal school environment.
7. Evidence of creativity.
8. Evidence of leadership ability.

In light of the above approaches to identify the gifted, in this study the following criteria were used:

1. **Test criterion:** The intelligence as measured by SPM, Raven (1977) test scores which fell at the 95th percentile point representing top 5% of the population were used for assessing intelligence of gifted students.

2. **Non-test criterion:** Teacher evaluation as measured by teacher's rating scale by Bhatt (1973) consisting of five aspects on which the giftedness was rated i.e. Health, school studies, Intellectual, social and personal aspects.

3. **Evidence of achievement:** This was measured on the basis of marks of students in annual examinations of the previous class i.e. class XI.

**Career Choices Defined**

Career choice is a continuing process - not a single decision but a series of decisions made over a period of years.

According to Super and Overstreet (1960), vocational choice is a developmental process which takes place over a considerable period of time and which largely terminates when an individual enters an occupation.

According to Tyler (1961), vocational choice is defined as the process of choosing an occupation as that of establishing an identity. It is a compromise between preference for, and expectations of being able to get into various occupations.
According to Crites (1969) an individual, when given a number of vocational alternatives, expresses his preferences for one or another, and this constitutes his choice.

Herr and Cramer (1972) stressed that vocational choice is not only a function of relating an individual's traits to the job characteristics, but, is also a function of complex interaction between his environment and developmental process.

Page and Thomas (1977) hold that vocational choice is decision made by a pupil on his/her future work, occupations or career.

Career choice is a selection of a vocation, usually on the basis of some or all of the following: parental guidance, vocational counselling, identification with admired figures, trait or part-time jobs, training opportunities, interest and ability tests.

**Giftedness and Career Choices**

Each individual is unique and creates his/her own career path. But, in our society, career aspirations, educational choices and life style expectations are hardly guided by an individual's own interests. Problems with gifted children are that they are ambivalent about their giftedness. During the years proceeding their career choices, gifted are highly affected by their perception of the negative social effects of giftedness which really hampers their career choices. This is more pronounced for gifted adolescent girls. They are particularly in conflict about social implications and affected by heightened senstivity to social rules.

The various studies on giftedness and career choices are as follows:

Frankel (1960) compared vocational interests of achieving and underachieving gifted boys and found that interests of unnderachievers were
significantly greater in the mechanical area whereas those of the achievers were in the scientific area. In addition, the achievers were more interested in the computational and the underachievers in the artistic area.

French and Steffen (1960) compared gifted and less gifted males and females on vocational areas and found great differences between gifted and less gifted males on literary, artistic and computational areas. The gifted females were found to be more interested in literary, mechanical, computational, artistic and social service areas.

Super and Crites (1968) concluded that interest patterns are related to the degree of general intelligence. They further found that in general, students in science and liberal arts courses have the highest intelligence test scores, with those in commercial subjects coming next and trade courses last.

Butcher and Pont (1968) compared 150 gifted students and found that boys rate higher on 'liking' and 'interest' the careers of engineer, research chemist, physicist and science teacher whereas girls rate more highly those of social worker, teacher of non-science subjects, journalist and psychologist.

Welsh (1971) in his study on gifted adolescents found positive relationship between non-verbal intelligence score and scientific interests, physical sciences and other vocations stressing methodological and rational approaches to their problems. Business interests particularly in sales and occupations of personal and social contacts showed negative relationship with non-verbal intelligence scores.

Tanprabhet (1976) found that students interested in arts and entertainment possessed higher intelligence than students interested in groups like social service, technology orientation, business contact, science and general culture.

Marcantel (1982) compared 43 gifted and 43 nongifted girls and found
that gifted girls more frequently selected traditionally masculine careers on both the post and delayed post survey of career choices.

Bledsoe (1982) in his study with gifted and non-gifted students found that gifted girls do not differ from gifted boys in career choices; however, gifted girls differ significantly from non-gifted girls in the clerical, professional and service occupations.

Wilson (1983) in his study with 30 male and 30 female students found that gifted females and males chose to enter a variety of careers in largely male dominated fields. The medical, Doctor and Engineering were frequent actual job choices.

Kirby (1989) in his study with 140 gifted females found that 74.96% selected professional careers and 52.27% selected male-dominated professions.

Tobin (1991) in his study with 185 gifted students found that boys' career choices are stable, and they tend to choose mathematically oriented careers early, while girls' career choices are less stable, and they tend to choose careers which require minimum mathematical training.

Feldhusen and Willard-Holt (1993) compared 132 gifted male and 97 gifted female and found that males had greater preference for math and science-related tasks.

In the light of above definitions, it may be concluded that gifted students prefer to take up scientific, mechanical, engineering, computational type of career choices while average students go in for social service, business, general culture etc.

Personality Defined

The word personality has been derived from the latin word persona, which refers to the mask worn by an actor and convey an impression what an
individual represents or typifies. In this sense, personality is the appearance which the individual presents to the world and attracts others.

Jersild (1960) speaks of personality as the sum total of an individual's properties as a distinct and unique human being.

Eysenck (1960) defines personality as the more or less stable and enduring organisation of a person's character, temperament, intellect and physique which determine his unique adjustment to the environment.

Allport (1961) suggested that personality is the dynamic organisation within the individual of those psychological systems that determine his/her unique adjustment to his environment.

Dyal (1962) defines personality as the study of the dynamic organisation of those part processes within the individual which motivate and guide his/her adjustment to his/her environment.

Garrett (1964) says that personality not only includes an individual's characteristic ways of conducting himself in everyday situation but stresses as well such conditioning factors as physique, appearance, intelligence, aptitude and character traits.

Cattell and Eber (1967) defined personality as that which permits a prediction of what a person will do in a given situation and is concerned with all the behaviour of the individual, both overt and under the skin.

According to Evans and Smith (1970), personality refers to the combination of characteristics that distinguish one person from all others. Personality is organised into a pattern or structure which includes the social stimulus value and the self-concept or ego. Personality assessment is one means of discovering the potential abilities and limitations within the self.

Singer and Singer (1972) viewed personality as a self, and a set of enduring if complex dispositions which differentiate one person from another
and which also give each of us some sense of uniqueness as well as commonality with the human race.

Davidoff (1976) defines personality as the unique pattern of relatively enduring behaviours, feelings, thoughts, motives, interests and attitude that characterize a particular individual.

According to Fernald and Fernald (1978), personality is generally defined as the unique and characteristic ways in which an individual reacts to his or her surroundings. It is composed of relatively consistent patterns of behaviours. Some being common to other individuals and others being distinct from all other individuals.

Hawes and Hawes (1982) edited the concise dictionary of Education. According to which, personality is the total psychological and social reactions of an individual, the synthesis of his subjective, emotional and mental life, his behaviour and his reactions to the environment: the unique or individual traits of a person are connected to a lesser degree.

The above definitions may be cited as follows:

Personality is the sum total of actual or potential behaviour patterns of organisms as determined by environment.

Giftedness and Personality

The characteristic feature of the present day educational system is that students with varying degrees of intelligence, with a variety of personality traits, from diversified culture and from different social and economic groupings, living under varied home conditions, have all crowded the classrooms to make a claim for their right for education. Such an expansion has sacrificed efficiency and has resulted in wastage and stagnation and in the number of drop outs at every stage of education. There is logic in the complaint of critics that our educational system serves the 'mediocres' with their average talents and ignores the 'tops'
and bottoms. It polishes the pebbles and dims the diamond. The negligence has led to the creation of problems of personality maladjustment. This fact cannot be denied that the students heterogeneous mental capacities and differentiating personality traits pose a challenging problem for teachers and present tremendous difficulties in the progress of class achievement.

The child can have his personality traits and ways of using his ability influenced by parental attention and love. Parents provide children with the socialised anxiety that motivates children to try harder at school learning.

Some studies confirm that there are marked deviations in the personality structure of intellectually tops, middle and bottom class students that are described below:

D'heurle et al (1959) in their study with gifted children found relations among personality traits and high general and differential academic achievement and came to the following conclusions:

High general achievers were found to be independent, self confident and effective participants in group activities.

Warren and Heist (1960) examined the personality characteristic of gifted students and found that superior students are of an aesthetic orientation and independent, confident and generally mature in their interactions with the external world.

Easton (1960) compared personality traits of 20 underachieving and 20 achieving high school students of superior ability and found under achievers having less satisfactory parental relationships, more insecurity and more egocentricity, and less achievement drive than good achievers of the same ability level.

Kennedy (1960) examined personality characteristics of mathematically gifted adolescents found them to be somewhat anxious, highly competitive,
marked tendency toward abstract beliefs and theoretical values, uniformly well adjusted, showing little signs of egocentricity or one-sidedness.

Smith (1962) compared 42 gifted and 42 average ability adolescents and found that gifted ones were more consistently independent in their interpersonal relations than the average adolescents.

Mohan (1964) in his study with gifted boys and girls found boys to be significantly higher on paranoid, sophistication and girls were higher on worrying suspicious, surgency and nervous tension.

Schulman (1964) in his study with gifted male adolescents found that gifted adolescents with lower anxiety, higher self-esteem, lower dependence and higher assertiveness tend to be those with higher quantitative ability.

The gifted adolescents who are relatively higher in anxiety, lower in self-esteem, more dependent and less autonomous, more passive and less assertive, tend to be those with lower quantitative ability.

Purkey (1964) investigated personality characteristics of superior and average students and found superior students to be more adjusted than average students.

Nichols and Davis (1964) compared superior and average students and found superior students to be less religious and conventional, more idealistic and rebellious, less oriented to social or athletic interests.

Lovell and Shields (1967) examined the personality characteristics of gifted students and found that the gifted child is 'above average' on all the personality traits rated. These were rated as outstandingly high in general intelligence and desire to know; very high in originality, desire to excel, truthfulness, commonsense, will power and perseverance, also conscientiousness; rather high in prudence and forethought, self-confidence and sense of humour. In the same study, boys were rated somewhat higher on
sensitiveness to approval or disapproval, amount of physical energy, fondness for large groups and mechanical ingenuity; whereas girls were rated rather higher for appreciation of beauty, musical appreciation and freedom from vanity and egotism.

Hittson (1968) compared personality characteristics of superior students who score high and low on a standardized achievement test and found superior to be more intelligent, excitable and enthusiastic than who score low on the achievement test.

Gottsdanker (1968) examined personality characteristics of 150 gifted students and found females to be far more divergent than the gifted males. Males scored consistently higher on Impulse expression and religious liberalism scales.

Deo (1969) compared personality characteristics of 100 gifted and 100 average students and found girls to score higher on extraversion, dominance, self-confidence and sociability than the average boys but differences on the dimension of self-sufficiency were not significant.

The gifted girls were almost equal on neurotic tendency, extraversion-introversion, dominance - submission and self-confidence, but higher on intellectual independence and lower on sociability scale than the average girls.

The gifted boys were more self-accepting and the average were self-rejecting. The gifted girls were more self-rejecting than the average girls.

Houlihan (1971) examined the personality characteristics of gifted students and found them significantly higher in study habits and happy qualities, higher in social relations, mental ability and work habits.

Payne et al (1973) concluded that academically talented students are characterised by practical learning, rapid mastery of intellectual tasks, and not allowing tension to interfere with school work. Artistically talented students, on
the other hand were characterised as being interested in working with ideas, with more current, realistic, practical and concrete consequences.

Gotz and Gotz (1973) in their study with 50 gifted and 50 ungifted art students found gifted to be more introverted and neurotic.

Francine (1973) compared personality factors of students talented in English and Mathematics and found that students talented in Mathematics or English do not differ in levels of responsibility. The students talented in English are considerably more sociable than students talented in Mathematics. Mathematics students tend toward extremes and usually become severely anxious. English students, on the other hand, tend to fall within the average range.

Suri (1978) compared personality characteristics of gifted, average and below average students and found significant differences for eight traits out of fourteen traits which are as follows:

**Factor B** The gifted students were found to be more intelligent than average students.

**Factor C** The gifted students were found to be emotionally stable than average students.

**Factor E** The gifted students were found to be more obedient than average students.

**Factor G** The gifted students were found to be responsible, moralistic, with high super ego. The average students are often casual and lacking in effort for group undertakings.

**Factor H** The gifted students were found to be sociable, bold, ready to try new things, spontaneous and abundant in emotional responses.
They tend to be pushy and actively interested in the opposite sex. The average students tend to be shy, withdrawing and cautious.

**Factor I**
The gifted students in comparison to the average students tend to be practical, realistic, masculine, independent, responsible, but skeptical of subjective and cultural elaborations. They are sometimes unmoved, cynical, hard and smug. The average students tend to be tender-minded, day-dreaming, artistic, fastidious and feminine. They are sometimes demanding of attention and help, impatient, dependent and impractical.

**Factor O**
The gifted students in comparison to average tend to be placid, with unshakable nerve. They have a mature, unanxious confidence in themselves and in their capacity to deal with things. They are resilient and secure. The average were depressed, moody, full of foreboding and brooding.

**Factor Q₃**
The gifted students tend to have strong control of their emotions and general behaviour and are inclined to be socially aware and careful with regard for social reputation. The average students will not be bothered with will control and regard for social demands. They are not overly considerate, careful and may feel maladjusted.

**Factor Q₄**
The gifted students tend to be sedate, relaxed, composed and satisfied. But average tend to be tense, excitable, restless and impatient. They are often fatigued but unable to remain inactive.

Killian (1981) examined the personality characteristics of secondary school students and described girls as more tense and boys more mature, individualistic and resourceful.
Burk (1980) in his study with 125 gifted children found that they have a higher level of persistence, lower distractibility, greater adaptability, more approaching behaviour, and more positive mood.

Killon (1983) investigated personality characteristics of intellectually gifted and non-gifted 7th-12th grade students and found gifted to be more critical, serious, persistent and self-sufficient and would evidence more ego strength and fastidious individualism than non-gifted. Non-gifted females were less realistic than non-gifted males, but no significant differences was evident between gifted females and males.

Karnes and Wherry (1983) examined personality characteristics of 46 female and 51 male gifted students and found gifted males to be more controlled, socially precise, self-disciplined, and compulsive than females, who were described as more casual and careless of social rules. Gifted females were more assertive and independent than males who had scores suggesting a more obedient, mild, or conforming personality.

Suri (1984) compared personality characteristics of musically gifted and non-gifted girls and found gifted girls to be marked by introverted tendencies, anxiety, neurotic feelings, and are socially conscious. The personality of musically non-gifted girls is marked by extroverted tendencies, non-neurotic tendencies and socially precise.

Karnes, Chauvin and Trant (1985) in a study on personality characteristics of 199 gifted students found males to be more sensitive and overprotected and females to be more excitable and impatient.

Karnes, Chauvin and Trant (1985) compared 199 gifted students and 176 fine and performing art students on personality characteristics and found gifted to be excitable, assertive, enthusiastic and relaxed or composed. Talented were characterized as tender-minded, reflective, internally restrained and self-assured but somewhat tense and driven.
Scott (1987) compared personality characteristics of Artistically talented, Academically talented and Average students and found that both males and females in the Artistically talented group are significantly different from the Academically talented and the Average group on a number of personality variables. Certain characteristics traditionally associated with artists such as the tendency to be detached and aloof from society, to be radical and free-thinking and to value the aesthetic episodes of life above all else were found in this sample of artistically talented students living in rural and small town environments and attending schools that make no formal provisions for the development of their talent.

Powers, Douglas and Choroszy (1988) examined personality characteristics of 39 male and 73 female gifted students and found significant differences between the sexes on conformity, spontaneity. Both boys and girls scored higher than norm groups with respect to the Intelligence and Dominance factors.

Rogers (1987) compared gifted and average youngsters and found significant differences in the intellectual, social emotional, imaginative and talent development domains, with the intellectual and social being most different.

O'Brien (1989) examined personality differences among science-oriented students of high ability studying in three different learning environments and found that the girls participating in the classroom setting scored significantly higher than boys on five scales (capacity for status, Tolerance, Socialization, Communality and Femininity) while girls in the research apprentice setting scored significantly higher than the boys on the Responsibility, Tolerance, Achievement via Independence and Femininity scales. Girls in the field setting scored significantly higher than their boy counterparts on the Femininity scale only.
Dauber and Benbow (1990) compared exceptionally gifted and modestly gifted students and found exceptionally gifted as more introverted, less socially adept, and more inhibited, and less popular with peers.

Stuart (1990) compared gifted and average students and found that children in the gifted group were characterized by high levels of psychological resources, sophisticated cognitive and perceptual activity, emotional complexity and high levels of introspection.

Ham and Shaughnessy (1993) examined personality characteristics of gifted science students. He found boys to be more outgoing and external and girls more internal and excitable in their approach.

Chovan and Freeman (1994) compared gifted and average students and found that significant differences occurred between the boys and girls and average and gifted girls on social relationships subscale.

Heiss (1995) in his study with gifted adolescents found that they demonstrated high self-confidence. Intellectually gifted girls were more interested in people and aesthetic pursuits than the boys and also demonstrated more interest in religion. Verbally gifted adolescents were less sociable, but more inclined to push the limits than their mathematically gifted peers.

Khan (1996) compared gifted achievers and underachievers and found that they differ significantly on factor "G" and "O" of HSPQ only, indicating that

(a) Gifted achievers have high super-ego strength, are responsible, conscientious, persistent, moralistic, emotionally disciplined, dominated by a sense of duty and concerned about moral standards and rules, whereas gifted underachievers possess low super-ego strength are frivolous, self-indulgent, fickle, undependable and disregard obligations to people.

(b) Gifted achievers are untroubled, self-assured, secure, serene, self-
confident, insensitive to people's approval and disapproval and have no fears and conversely gifted underachievers have guilt proneness tendencies, are insecure, worrying, troubled, anxious, sensitive to people's approval and disapproval and possess phobic symptoms.

In the light of above studies, it may be concluded that gifted students are independent, confident, competitive, well adjusted, highly intelligent, emotionally stable, bold than the average students.

**Family Environment**

It is a well known fact that home is the most important place where a child inhales his/her first fragrance of love, care, empathy through playful learning activities. Talent of any kind does not flourish in a non-supportive family.

Fine (1977) has observed: There is a need for parents to be very self aware regarding their personal investments in the child and also to maintain an accurate and balanced perception of the child as a growing person. Gifted children need parents for emotional support and encouragement, for value and behavioural guidance and to set realistic goals; it is appropriate and important that parents of gifted children in fact do fulfill a parenting "contract" with their children.

Feldman (1982) observed that even if the individual has an exceptional level of talent, this talent will not develop if the individual's environmental circumstances do not foster and stimulate the growth of talent.

According to Makstroth (1989) 'Home is a microcosm where children can experience their effectiveness and power to make a difference through problem solving, service and cooperation. When parents engender respect for the range of people's needs and lifestyles, children develop a sense of purpose and use their ability to benefit people of the world as well as themselves'.
Giftedness and Family Environment

Fostering the intelligence of gifted children seems to be highly complex. The source of parental influences derives from directly manifested behaviour as well as from more general and indirect attitudes. These attitudes and the personality traits of the parents (indirect factors) seem to be as important for the development of the gifted child as is cognitive interaction (a direct factor). What this means, then, is that it is the combination of direct cognitive interaction and the fostering of intelligence and knowledge, together with the indirect encouragement of daring, risk taking, and the willingness to experience new things, that creates the conditions amenable for the actualization of such children's potential.

All this is possible if the family environment provides freedom for the development of intellect and personality. Morrow and Wilson (1961) found that families of high achievers were more supportive, less authoritarian and more permissive than families of low-achievers.

Taylor (1964) found general support for the belief that over achiever accepts authority and has good relationship with parents. The parents tend to be supportive of their children's academic efforts and the children try to please them by doing well academically.

Kennedy and Willcutt (1965) compared 114 mathematically gifted adolescents and a control group of high school seniors and found that gifted adolescents showed autocratic, somewhat negative family relationships involving high achievement demands and fixed routines.

Chopra (1967) in his study with 152 gifted students found that gifted students had higher family incomes, lived in better lodgings, had smaller families, and the cultural atmosphere in their homes was more stimulating.
Tabackman (1977) evaluated the psychosocial climate of families of gifted adolescents using the family environment scale and found that high achievers were more likely to perceive their family environments as cohesive, structured and conflict free.

Stone (1982) in his study with 86 gifted students noted that students from families high in achievement orientation, conflict and independence had lower GPA's.

Colangelo and Dettmann (1983) reviewed the research on parents and families of gifted children and implied value on the importance of home environment and family relations on the later achievement of high-ability youngsters.

Zuccone (1985) in his study with academically gifted children found achieving youngsters of both gifted and control groups perceived their families in the functional mid-range as cohesion. Where dysfunction occurred, gifted achievers perceived their families as more enmeshed while gifted underachievers perceived their families as more disengaged.

Katherine (1986) examined the family systems of achieving and underachieving gifted male adolescents and found that families with achieving gifted students saw themselves as more satisfied with their families than did the families of underachieving gifted students. Families with achieving gifted children were more satisfied with the academic achievement of their adolescent than were families of underachieving gifted students.

McGowan (1986) viewed that gifted adolescents whose parents were warm and accepting had high self-esteem. Parental achievement emphasis was not related to the adolescent self-esteem.

Van Tassel-Baska (1990) in his case study approach with gifted adolescents noted the importance of families as a source of encouragement and support for them.
Lee (1991) found a mutual relationship among child’s IQ and GPA, parents SES, parents’ education and family environment measured by the family environment scale.

Weissler and Landau (1993) found fathers in families with no gifted children as the most authoritarian, those in families with one gifted child as the least authoritarian and those in families with more than one gifted child as moderately authoritarian.

Weissler and Landau (1993) studied parental environment in families with gifted and non-gifted children and found significant differences between the groups for environmental stimuli, parents’ academic achievements, cognitive interaction, parents’ attitudes toward their children’s intelligence, and parents’ personality traits (assertiveness, self-confidence and liberalism).

Morelock (1995) evaluated the psychosocial climate of families of gifted adolescents using the family environment scale and found that gifted adolescents were more likely to perceive their family environments as cohesive and expressive.

In the light of the above studies, it may be concluded that the families of gifted adolescents are cohesive, structured, expressive, supportive, conflict free than the families of average students.

Statement of The Problem

The present study is entitled below:

COMPARISON OF GIFTED AND AVERAGE STUDENTS WITH RESPECT TO THEIR CAREER CHOICES, PERSONALITY AND FAMILY ENVIRONMENT AT THE SENIOR SECONDARY STAGE.
Delimitation of The Study

The study is delimited with regard to the following:

1. Population of the study consisted of students studying only in Government Model Senior Secondary Schools affiliated to the C.B.S.E., in U.T. of Chandigarh.

2. The study was confined to students studying in class XII only.

3. The study was delimited on the variables of Career Choices, Personality factors and Family environment.

Objectives of the Study

The major objective was to compare gifted and average students on the variables of career choices, personality factors and family environment.

In order to achieve this objective, it was essential to identify gifted students from a total sample of 1118 collected for this study.

Further, the study was carried out with the secondary objectives as well. Thus, all the objectives major as well as secondary, are given below:

1. **Major Objective**

   To identify and select gifted and average students from among the total sample and to compare gifted and average students on the variables of career choices, personality factors and family environment.

2. **Secondary Objectives**

   i) **Sexwise Comparison**:- The objective was to compare gifted and average males and females on the variables under study.

   ii) **Subjectwise Comparison**:- To compare gifted and average students in the subjects of Arts, Science and Commerce groups on the variables under study.
3. **Bivariate Relationships**
   To study the nature, extent and magnitude of relationship between intelligence, achievement, career choices, personality factors and family environment of gifted and average groups.

4. **Multivariate Analysis: Factor Analysis**
   To study the underlying structure of variables i.e. career choices, personality factors and family environment which constellates together under a canopy of gifted and average groups.

**Hypotheses of the Study**

In accordance with major and secondary objectives of the study various hypotheses were formulated which are stated as follows:

1. **Main Hypotheses**
   **Comparison of Intellectually Gifted and Intellectually Average Students on all the variables under study.**
   The significant differences exist on the variables of career choices, personality factors and family environment between gifted and average students.

**Career Choices**
   The gifted students prefer more of scientific, technical type of vocations which require top level management in comparison to their average counterparts who prefer social service, business, arts and entertainment type of vocations.

**Personality Factors**
   The gifted students are more independent, self- confident, mature, anxious, highly-competitive, more adjusted, emotionally stable, obedient, have
high super ego, sociable, bold, intelligent, relaxed, self-sufficient, practical in comparison to their average counterparts.

Family Environment

The gifted students in their families perceive more of cohesion, expressiveness, independence, achievement orientation, intellectual-cultural orientation, active-recreational orientation whereas in case of average students, perception of their family environment is characterised more by moral-religious emphasis, organisation and control.

2. Secondary Hypotheses

i) Sexwise Comparisons:- Sex distinguishes the gifted and average on the variables of career choices, personality factors and family environment.

Inter Group Comparisons

a) Comparison Between Gifted Males and Average Males

The significant differences exist on the variables of career choices, personality factors and family environment between gifted males and average males.

Career Choices

Gifted males prefer more of scientific, technical type of vocations which require top level management in comparison to their average male counterparts.

Personality Factors

Gifted males are self-confident, reserved, highly intelligent, tender-minded, possess higher ego strength, controlled, enthusiastic, socially bold in comparison to their average male counterparts.
Family Environment

The family environment of gifted males have more of cohesion, expressiveness, independence, organisation in comparison to their average male counterparts.

b) Comparison Between Intellectually Gifted Females and Intellectually Average Females

The significant differences exist on the variables of career choices, personality factors and family environment between gifted females and average females.

Career Choices

Gifted females prefer more of scientific, artistic, computational, social service type of vocations in comparison to their average female counterparts.

Personality Factors

Gifted females are more controlled, intelligent, self-confident in comparison to their average female counterparts.

Family Environment

The gifted females are gifted because of more of cohesion, expressiveness, achievement orientation, independence and organisation in their families in comparison to their average female counterparts.

Within Group Comparisons

a) Comparison Between Intellectually Gifted Males and Intellectually Gifted Females

The significant differences exist on the variables of career choices, personality factors and family environment between intellectually gifted males and females.
Career Choices
Gifted males prefer scientific, technical type of occupations in comparison to females who prefer artistic, computational, social service type of occupations.

Personality Factors
Gifted males are self-confident, reserved, intelligent, tender-minded, possess higher ego strength, controlled, enthusiastic, socially bold in comparison to gifted females.

Family Environment
Gifted males perceive more of cohesion, expressiveness, independence, achievement orientation in their families whereas the females perceive more of organisation, achievement orientation, control in their families.

b) Comparison Between Average Males and Average Females
The significant differences exist the variables of career choices, personality factors and family environment between average males and females.

Career Choices
The average males prefer more of mechanical, artistic, social service, business, scientific types of vocations in comparison to females.

Personality Factors
The average males are more realistic, casual, extrovert, self-rejecting, tender-minded, withdrawing in comparison to females who are dominant, less realistic, self-confident, socially precise, shy.

Family Environment
The average males have more of independence, achievement orientation, active-recreational orientation in their families in comparison to
females who have more achievement orientation, organisation, control, moral-religious emphasis in their families.

(ii) **Subjectwise Comparisons:** The gifted and average arts, science and commerce students will be compared on the variables of career choices, personality factors and family environment.

a) **Comparison Between Gifted and Average Arts Groups**

The significant differences exist on the variables of career choices, personality factors and family environment.

**Career Choices**

The gifted arts group prefer technical, arts and entertainment, organisation type of vocations in comparison to their average arts group who prefer social service, general culture.

**Personality Factors**

The gifted arts students are more independent, self-confident, mature, anxious, highly-competitive, obedient, relaxed, tender-minded in comparison to average arts students.

**Family Environment**

The gifted arts group perceive more of cohesion, expressiveness, independence, achievement orientation, intellectual cultural orientation, active-recreational orientation whereas in case of average arts group the family environment is characterised more by moral-religious emphasis, organisation and control.

b) **Comparison Between Gifted and Average Science Groups**

The significant differences exist on the variables of career choices,
personality factors and family environment between gifted and average science students.

**Career Choices**

The gifted science group prefer technical, organisation, scientific type of vocations in comparison to average science group who prefer scientific, social work, general culture type of vocations.

**Personality Factors**

The gifted science students are more confident, emotionally stable, practical, independent, relaxed, obedient in comparison to their average science group counterparts.

**Family Environment**

The gifted science group perceive more of cohesion, expressiveness, independence, achievement orientation, organisation in comparison to their average science group.

c) **Comparison Between Gifted and Average Commerce Groups**

The significant differences exist on the variables of career choices, personality factors and family environment between gifted and average commerce students.

**Career Choices**

The gifted commerce group prefer more of technological, computational, mathematical type of vocations in comparison to their average counterparts.

**Personality Factors**

The gifted commerce students are confident, resourceful, self-sufficient, reflective, tender-minded, enthusiastic in comparison to their average commerce group counterparts.
Family Environment

The Gifted commerce group perceive more of cohesion, expressiveness, organisation, less of conflict, more of achievement orientation in their families in comparison to their average commerce group counterparts.

3. Bi-Variate Relationships

There exist significant correlations between intelligence, achievement, career choices, personality factors and family environment of gifted and average groups.

4. Multivariate Analysis: Factor Analysis

Some dimensions of each of the variables of career choices, personality factors and family environment constellate together under a particular canopy of factor. Different factor structure of variables will be observed in case of gifted and average groups.