C H A P T E R II

RELEVANT PAST STUDIES

2.0 INTRODUCTION

In all the periods of history, more or less provisions were made for the education of the gifted children. But these provisions were inadequate and unsystematic. During Mohmmedan period strongest, fairest and most intelligent children were selected to be trained as leaders of their kingdom. In this attempt the Mohmmedan rulers became successful. In the selection of these children the prominent factors were birth, power and material wealth. Intelligence got position in the selection of these children for the leadership during the Renaissance. Between seventeenth and twentieth century very little attention was given to the education of the gifted children. The literature on gifted children was haphazard till the beginning of the present century, when education got much impetus from advances in psychology. After the development of intelligence tests by Binet, the real psychological study of the gifted children

was started. By 1920, many studies were planned but these studies were based on some single subject or on very small groups. The findings of such studies also created tremendous interest in the study of the gifted children in general. It is worthwhile reviewing some of the important studies in this connection before discussing the present study.

The main aim of this chapter is to summarise briefly some of the studies on the gifted children, as well as some studies pertaining to relationship among intelligence, creativity, achievement and personality.

2.1 THE STANFORD STUDIES OF THE GIFTED BY TERMAN

In 1921, Professor Lewis M. Terman[104, 107] started to study the gifted at Stanford on a large scale. The objectives of the study were to discover physical, mental and personality characteristics of the gifted children. The subjects studied were 1528 pupils selected from a school population of about a quarter-million. Among these 1528 children, 857 children were boys and remaining 671 were girls. Their intelligent quotients measured by then developed and the most popular Binet Scale of Intelligence were close to 140 or above. The mean age of these high school pupils was 15.2 years. The data collected for these children were extensively descriptive. The data gathered were on home, school, medical examinations, anthropometric

measurements, achievement, character, intellectual activity, interests, play interests and indices of masculinity, maturity and sociability of interests. For the purpose of comparison the data of unselected general group of children for all the above items were also gathered. These children were later on again followed up in 1940 and 1945.

The following is the summary of the results of the study conducted during 1921-23.

1. From the medical examinations, health histories and anthropometric measurements, it was concluded that average member of the gifted group was better physically than the average child of the general group.
2. Educationally, i.e., regarding their achievement in school subjects the average member of the gifted children was held back two or three full grades below the level which he had already obtained.
3. In reading, spelling, language usage, arithmetical reasoning and computation, science, literature, arts and factual information about history and civics, the superiority of the gifted children was greater than the unselected children.
4. The results of analysis of the achievement tests showed that the amount of unevenness in the subject matter profiles (a sort of deviation from the mean) of the gifted children did not differ significantly from that shown in the profiles of unselected children.

5. The interests and hobbies of the gifted boys and girls were many sided and spontaneous. They learnt to read earlier and more easily, read more and better books, made more numerous collections, developed many kinds of hobbies, got far more knowledge of plays, games and amusements, revealed a degree of interest maturity two or three years beyond their age norm, in comparison to the average children of their years.

6. On character tests compared with unselected children, they were not inclined to boast their knowledge and were more trustworthy under temptation. They had wholesome character preferences and social attitudes and scored higher on a test of emotional stability. On the whole the total score of the character tests of the typical gifted child of 9 years was as high as the average child of 12 or 13.

7. The proportion of the gifted subjects exceeded the mean of unselected children by 90 percent for intellectual interests and by 84 percent for social interests. On activity interests both the groups were equal.

8. The proportion of the gifted children rated on 25 traits by their teachers as superior to unselected children of corresponding age was 89 percent for mean of four intellectual traits, 82 percent for mean of four volitional traits, 67 percent for mean of three emotional traits, 64 percent for mean of four moral traits, 61 percent for mean of two physical traits and 67 percent for mean of five social traits. On mechanical ingenuity both the groups rated equally.

The deviation of the gifted boys and girls from the generality is in the upward direction for nearly all traits but in varying degree.

The follow-up study conducted by Terman and Others[106] had included two extensive field studies with retests in 1927-28 and 1939-40. Some of the most significant deductions are as follows :

1. The typical gifted child was superior not only in intelligence but in practically all the traits that were studied, including school achievement, versatility, character traits, play information, social adjustment and physique.
2. As adults, the group as a whole averaged in tested intelligence about 1.0 S.D. above the average of college students and between 2.0 and 2.5 standard deviations above the average adult. None of the subjects regressed to average adult intelligence, but perhaps 10 per cent regressed from the 99th percentile to the 85th percentile or below.
3. The mortality in the group had been only about four fifths of the expectancy for the general population of comparable age. The insanity rate had been low, and serious maladjustment (other than insanity) amounted to only 4 per cent by 1945.
4. Nearly 90 per cent of the group had some schooling above the secondary level, and about 70 per cent had graduated from college. Two-thirds of the men and three-fifths of the women who graduated from college had one or more years of graduate work.

5. The school records in general had been superior at all educational levels, but a good many of the subjects had failed to achieve in proportion to their intellectual ability. Of the numerous causes responsible for such failure, one of the most important was the absence of adequate educational procedures adapted to children of exceptional ability.

6. Adult success of the group, whether measured in terms of educational or vocational achievement, had been on the whole outstanding. Compared to a random population of similar size, the gifted group, selected in childhood solely on the basis of I.Q. furnished many times the usual proportion of doctors, lawyers, university teachers, engineers and leaders in business or other fields. Even the least successful 20 percent of the group did not compare badly with the average run of the college graduates. The prognostic significance of superior childhood I.Q. had thus been established beyond question.

7. Finally, there have been suggested a number of ways in which the potentialities of gifted children can be more fully realized by home and school training. In this connection, the author has especially emphasized the importance of curriculum enrichment, special classes, vocational guidance and a greater amount of school acceleration.

2.2 THE STUDIES OF LETA S. HOLLINGWORTH

While Professor Lewis M.Terman on the Pacific Coast was working on the problems in the field of gifted children,

Professor Leta S. Hollingworth[55] on the Atlantic Coast was beginning to explore the same field from the other direction. Professor Hollingworth relied upon quantitative and objective instruments of measurement and pressed for systematic and exact recording of data. She planned and carried out detailed study of her children. The unique character of Professor Hollingworth's work lays in highly organized educational experiments which she herself conceived, planned and supervised in every detail. She not only explored the important psychological facts concerning the general nature of the mentally superior, but also her main concern was to determine what constituted proper educational provisions for them. She worked intensively with two separate groups of gifted children, the total number in both groups somewhat exceeding one hundred. She observed the children daily during her experiments. She began her work with superior children in 1916. She concentrated more on educational and personal problems of mentally superior children. It is said that physical and social maladjustments arise when a child is accelerated through the grades. Though he can function with real interest intellectually, he will be out of harmony with the classroom situation in other important respects. There is

also loss of certain fundamental knowledge and skills due to child's skipping through the grades.

Results of Hollingworth's study indicated that special classes did not produce as personality handicaps either conceit, poor health or social unadaptability, as was sometimes supposed where there had been no actual experience with special classes. The special class solved the problem of how to provide both appropriate work and appropriate social contact with classmates, as shown by her experiments, described below.

Experiment No. 1 :

Professor Hollingworth(54) started her first educational experiment in 1932. She formed two special opportunity classes at Public School 165. The classes were relatively homogeneous, not only chronologically and socially, but also mentality as well. In each group there were 26 children. In group A the students were with I.Qs from 150 up, and in group B the students with I.Qs. from 134 and 150. All students were falling within the chronological age ranging between 7½ and 9½ years. The criterion for selecting the children was substantial grade acceleration. The purposes behind the experiment were in her words as under :

1. The particular child in it must be educated.
2. They must be studied genetically, physically, psychologically and educationally.
3. Our knowledge of superior children must be increased because we have very little information to guide them and for schooling them.
4. To keep records of their development and progress - physical, social and educational.

Thus experiment continued for a period of three years. This experiment revealed important facts related to many phases of the educational and psychological problems of the gifted children. Her research mainly concerned with the musical sensitivity of intellectually superior childfen, comparative studies of the physical measurements, neuro-muscular capacities and facial beauty of the gifted, the relative mental ability of gifted children and their siblings and the permanence of the superior status of these children. It was found in this experiment that superior children needed only half the usual time to cover adequatel the prescribed subjects and some of the top group needed only one-fourth of the usual time. At the end of three year an evaluation of progress was made by comparing the achievement by means of standardized achievement tests with a control group of thirty six children who were similar in age and intellectual capacity, but who were attending the

regular grades of the elementary schools. It was found that in accomplishment in subjects matter there was no appreciable difference between the segregated and non-segregated groups. In case of intellectually superior children, accomplishment in the subject matter measured by standardized tests was very much superior wherever these children were located. The evaluation study concluded that the advantages to be hoped for from the homogeneous grouping of gifted children lie not so much in the expectation of greater achievement in the tool subjects of reading, arithmetic and spelling as in an enrichment of scholastic experience with additional intellectual opportunities. If she had had at her command equally refined and objective instruments of measurement by which the degree of personal satisfaction and social adjustment could be ascertained, the results of the evaluation might have been quite different.

Experiment No.2 :

Professor Hollingworth[57] started her second educational experiment in 1934. The objectives of this experiment were as under :

1. Need for the individualization of instruction.
2. To study a reduction of retardation, a formulation of standards of expectancy; a programme for the discovery and development of individual talents; and a plan for individualizing curricular offerings.
3. To study the development and education of exceptional children.
4. To study the problem of the intellectually gifted child who has the ability to cover the prescribed curriculum in a fraction of the time allowed and then has no task to challenge or interest him.

This experiment lasted for a period of five years. The I.Q.'s of the children of the two classes were above 130. They were selected on the double criteria of I.Q. and chronological age, disregarding actual grade placement. The chronological age of the children were between 7 and 9 years of age. To develop each child to the fullest expression of his powers was also the function of the experiment. The individualization of education meant therein to evolve a curriculum for exceptional children which will be psychologically possible and proper, socially sound and ethically humanitarian. The students selected for the two classes, were 50.

It was realized that gifted children had more information and deeper insight into a topic than the teacher.

The curriculum of these children was enriched by giving full opportunities. As a result of this experiment, Professor Hollingworth evolved the first step in a curriculum for rapid learners, which she had envisioned as psychologically possible and proper, socially sound and ethically humanitarian.

2.3 ADJUSTMENT OF THE GIFTED

Professor Hollingworth[56] concentrated much on the study of the personality and social adjustment problems of the gifted children. She concluded that highly intelligent child had to work out an adjustment, if he could, but there was likely to be noticeable difficulty if he secured above 170 I.Q. The gifted children learnt everything very quickly. They were quick to find what type of behaviour on their part brought them satisfaction. They also learnt easily to abstain from undesirable behaviour that was followed quickly and inevitably by punishment. It was difficult for the gifted children to keep silence when ideas pressed for speech. Professor Hollingworth recorded that during the experimental stage of their education, the highly intelligent tended to avoid routine drudgery in favour of more stimulating and original projects. She also noted in the area of social adjustment of the gifted children that there was the lack of suitable friendship with children of their own age. The

pressing need of the gifted children was for an explanation of universe and the demand for a concept of the origin and destiny of the self. She had noted that adjustment became easier with every additional year of age because of physical maturity. Sometimes in gifted children there appeared negative suggestibility i.e. a condition which grew out of his struggle for adjustment against dull and unworthy adults during childhood. She observed that the gifted were usually superior in physique and physical stamina, were more pleasing in appearance than the average, were more stable emotionally, and had a low rate of juvenile misbehaviour or delinquency.

Further, both Lewis M. Terman and Leta S. Hollingworth, besides investigating the gifted children with I.Q. above 130 or 140 as above studied in detail the highly or exceptionally gifted children with I.Q. above 160 or 170. Their observations and results are of still greater interest and importance. The findings of their researches have been summarized in the following pages.

2.4 THE STUDIES OF HOLLINGWORTH CONCERNING THE HIGHLY GIFTED

Hollingworth[58] studied thirty-one such highly gifted children with I.Q. above 160. The summary of the findings of the studies of Hollingworth is as follows.

Origin was extremely varied as regards racial stock. The occupational status of the fathers all fell in Class I or

II : Professional, clerical or business proprietors. Socio-economic status wherever mentioned was said to be moderate. None was stated to be very wealthy or very poor. Age of parents at birth of the exceptional child covered a wide range. Development was decidedly a head of schedule for the group in all respects. Reported age of walking ranged from 7 to 14 months.

Talking in sentences ranged from 6 months to 19 months. The reported age of reading was always 3.5 to 4 years. General health was always reported as good. They were interested in questions on origin and destiny. The higher the I.Q., the earlier occured the pressing need for an explanation of the universe: the sooner appeared a demand for a concept of the origin and destiny of the self. Problems of right and wrong became troublesome for these young children.

The majority of children testing above 160 I.Q. played little with other children unless special conditions were provided such as those found in a special class. The difficulties were too great in the ordinary course of events in finding playmates who were appropriate in size and congenial in mentality. These children faced difficult educational problems perhaps the problems of themselves. In the elementary school situation

children of 140 I.Q. wasted half of their time. Those above 170 I.Q. wasted practically all of their time. Children of 170 I.Q. were likely to regard school with positive dislike because they found nothing in the work to absorb their interest. The children with I.Q.'s above 170 did not participate in the activities of other children. They preferred to stand on the sidelines to watch or to find solace in solitary play. One third of these highly intelligent children showed notable signs of creativeness. Another third showed such indications to a moderate degree. In the remaining third there was at least no indication of marked constructive originality.

In the development of their personalities they faced genuine hazards such as anxiety and guilt over evil, feeling of isolation, achieving adequacy without normal group support, tolerance, a tendency to attempt to dominate contemporaries and negativism towards authority.

Hollingworth believed the chances of genuine group leadership among the highly gifted to be slight. From the observation of the development of the gifted children she evolved the idea that there was a certain restricted portion of the total range of intelligence which was most favourable to the development of successful and well-rounded personality in the world as it now existed. This limited range appeared to

be somewhere between 125 and 155 I.Q. Children and adolescents in this area were enough more intelligent than the average to win the confidence of large numbers of their fellows, that brought about leadership and capacity to manage their own lives with superior efficiency. Moreover, there were enough of them to afford mutual esteem and understanding. But those of 170 I.Q. and beyond were too intelligent to be understood by the general run of persons with whom they made contact. They were too infrequent to find many congenial companions. They had to content with loneliness and with personal isolation from their contemporaries throughout the period of immaturity.

2.5 THE STUDIES OF TERMAN OF HIGHLY GIFTED

Lewis M.Terman[107] studied 81 children (47 boys and 34 girls) who had an I.Q. of 170 and above. The summary of the findings of his researches is as follows :

The educational and occupational status of their parents was superior; generally professional men, occupational groups I and II and college graduates. Their age of learning to read was earlier. 42.8 per cent of the boys and 25 per cent of the girls were reading before five years of age. 13.3 per cent of boys and 14.3 per cent of the girls learned to read between 2 and 4 years of age.

The highly gifted group received slightly higher marks than the gifted group as a whole. They graduated from high schools at a younger age, the boys by 9.6 months, the girls by 6 months. Nearly twice as high a proportion of them achieved an 'A' average in college. Terman found that these highly gifted children had acute problems of social adjustment. Physical development was not likely to be accelerated more than 10 per cent and social development probably not more than 20 or 30 per cent. The inevitable result was that the child of 180 I.Q. had one of the most difficult problems of social adjustment that any human being would be ever called upon to meet. The distribution curve of intelligence implied that a child of 140 or 150 I.Q. might find a fairly large group of associates whose mental development and range of interests were not hopelessly far behind his own, and who reacted to him as a congenial playfellow. The child of 170 or 180 I.Q. on the other hand stood in an extremely sparsely populated region of intelligence. If he was promoted to a school grade in which the intelligence level of the pupils was at all commensurate with his own, he was likely to be so immature in size, strength, and social-emotional development that there was little chance for him to become a functioning member of the miniature social cosmos in which he found himself. On ratings

of social adjustment none of the highest I.Q. cases fell into best adjusted category. Sixty per cent of the boys and 73 per cent of the girls were described by parents and teachers as poor mixers or solitary. An additional boy and girl were characterized as socially handicapped by their youthful age. There was no significant differences in age at marriage fertility and divorce rate. A correlation between childhood Binet I.Q. and women's occupations revealed no significant relationship. As young adults, these highly gifted young men and young women rated themselves as slightly left of center politically.

A comparison of the two studies of the gifted children by Terman and Hollingworth reveals the following facts.

Terman and Hollingworth believe that highly gifted children spring from family stocks of a variety of racial and national origins but of predominantly upper-middle class status, with a strong occupational trend in the direction of managerial and executive positions, independent proprietorship and the professions. The highly gifted children have accelerated development in the ages at which they learned to talk and read. They have good health and superior physique. Both Terman and Hollingworth have emphasized,

however, the discrepancy or disharmony likely to occur among their rates of physical, emotional, social and intellectual development. They recognized that highly gifted children face difficult problems of group adjustment and have superior school record. The highly gifted find little challenge to their interests and abilities. These children show a high degree of originality and creativity. The data of both Terman and Hollingworth reflect the emotional cost of the adjustment problems faced by highly gifted children and its depressing influence upon their productivity. While as a group they are highly creative. Hollingworth notes that a third of those she studied showed no indication of marked constructive originality. Terman observes that while they have as a group superior college records, the records of 25 per cent are but fair or poor. It is Hollingworth's judgment that the chances of genuine group leadership among the highly gifted are slight. Terman found them likely to be in the ruck of the groups in which they were studied. While in young adult life, they average superior social-economic status, a large proportion have failed to fulfill the promise of their childhood. The data of both Terman and Hollingworth reveal that the family stocks from which highly gifted children spring, happen to be of average if not of slightly superior stability. There is

no evidence of disproportionate instability in the children's own early histories. Terman is of the opinion that highly gifted children show little more maladjustment than do gifted children as a whole. Hollingworth believes that children of intelligence much above the optimum (I.Q. 125 - 155) are exposed to unusual hazards in their personal development.

2.6 OTHER STUDIES

Besides these two classical investigations, there have been other similar studies too. The observations of Harvey Zorbaugh and Rhea Kay Boardman[131] show that during early years highly gifted children function emotionally with no more stress than do young children in general to be normally outgoing in their interests, creative and productive. This picture changes during the middle years and adolescence.

While they have observed frequent exceptions, many show evidence of maintaining their high level of function at increasing emotional cost. Some show a diminution of social interest, creativity and productivity. Still others, like the third of the children reported by Hollingworth, show no indication of marked constructive originality. A few remain remarkable only in that they continue to achieve high scores

on intelligence test. Exploration of these children's feelings about themselves convinces such changes, in the children in whom they occur, reflect an increasing absorption of emotional energies within themselves, which in turn result from an increasingly stressful social adjustment. Turning to observation of their educational experiences, gifted children are likely to present difficult problems from the time they enter school. The highly gifted children work far below their potential capacity. At best the result is flagging of interest and restiveness. Too frequently it is frustration and resentment, resentment that may be returned by contemporaries and teachers. The researchers were further impressed as were Terman and Hollingworth with the difficulty in finding congenial contemporaries for highly gifted children because of the discrepancies between their rates of physical, emotional, social and intellectual development. These children try to change the group's activities. An analysis shows that the changes they produce are in the direction of more complex patterns with more remote goals. The highly gifted children have little chance of achieving group leadership. They are found well below average in their participation in the extracurricular life of the school. Further more, the highly gifted child's developmental disharmonies are likely to create stresses within his

personality, for instance between his intellectual conception of performance and his physical ability to realize it. Again, conflict may be created within highly gifted child's personality by the discrepancy between his intellectual and his emotional maturity. They face acute problems of adjustment in course of their development.

Lycock[65] studied superior students and compared them with inferior students. It was inferred by him that adjustment of superior students was better than that of inferior students.

Nevill's[76] study suggested that high I.Q. helped the students in good adjustment.

Gillingham[40] reported in his study that gifted children were not free from emotional and social adjustment problems.

James J. Gallagher[33] selected boys and girls whose I.Q. were 150 and above for his study. These children came from the regular classroom of primary and secondary grades. These children were studied with respect to their (1) outstanding problems, (2) adjustment problems, (3) educational efficiency, (4) motivation, (5) intellectual flexibility, (6) social and emotional pervasiveness and

(7) emotional restriction. It was found that in primary grades there were no outstanding problems but there was a marked increase in problems of intellectual inflexibility. The highly intelligent students had more adjustment problems in later grades and they tended to become less creative and more intellectual rigid and unimaginative. The total group seemed to be lacking in motivation, creativity or originality and had minor personal adjustment problems.

Grotberg[43] studied gifted students in 1961. For the purpose of comparison he also selected non-gifted students. The gifted were selected on the basis of I.Q. Students whose I.Q. were 120 and above were treated as gifted and those between 80 and 110 as non-gifted. The students were studied with respect to their age, education, occupation, psychological controls and general diagnosis, frequency of paranoid tendencies and incidence of obsessive-compulsive features. The age differences were not significant. The gifted obtained 3 to 5 years more education than the non-gifted. The gifted males had continued their higher education and were encouraged to pursue it more frequently and to more advanced degrees than females. The gifted were mostly working as physicians, teachers, publishers, pilots and engineers, while the gifted female did not attain higher occupational status. No significant difference in incidence of

schizophrenia were found between the gifted and the non-gifted students. The gifted females were significantly more psychoneurotic than the gifted males as well as non-gifted males. The gifted males showed the highest frequency of paranoid and obsessive-compulsive tendencies. The feelings of superiority of the gifted male were significantly higher than those of the gifted female.

Witty Paul[127] found his group of gifted children to be superior in poise and stability. He also found 10 per cent of the group to be anxious, withdrawn, insecure, indifferent, 'bored' and socially inadequate.

Drews[26] studied 150 gifted high school students selected through initial city-wide group intelligence testing and then through individual Stanford Binet Scale testing, 75 per cent came from homes of skilled, unskilled, and low level white-collar workers. Although the small number of upper middle class, professional and high level managerial families still accounted for more than their share of gifted children, the average and below average families were more equitably represented. In view of Drews's results, which report broader socio-economic representation in ranks of the gifted, other time honoured findings relative to the physical social and emotional superiority of the gifted may no longer stand up.

Bonsall[7] found that temperamental differences between gifted and average students were more a function of socio-economic level than of I.Q. When socio-economic background was held constant, the few significant differences remaining either were in cognitive functions, such as greater thoughtfulness or objectivity or were related to behavioural control. Differences in ascendance, emotional stability, sociability, friendliness, or co-operation were related to social class than to intelligence. A similar analysis of physical characteristics of the gifted children as well as of the values they hold, may find differences previously attributed to intelligence to be more significantly related to home background.

In a study of gifted junior high school students, Kirshner[63] found that these gifted were very articulate - in fact glib - when left to their own devices, but that their thinking was superficial at best. They liked to read, but would not voluntarily tackle more difficult books than those read by average students. His experimentation led him to conclude that the expected abilities are there, in latent form, but that they emerge only when the school sets learning tasks that require gifted students to perform in accordance with their intellectual capacities.

Strang[96] found that the voluntary reading of gifted students decreased as they progressed from junior to senior

high school and suggested that this decrease may be partly due to fear of being considered bookworms by friends, as well as increased homework demands. The results of all these studies somehow are not consistent nor comparable.

2.7 INDIAN STUDIES IN THE FIELD

Recently, some studies of the gifted have been attempted by researchers and educationists in our country too. Shah C.Z.[88] studied the superior children in the State of Gujarat. He considered students whose I.Q. were 130 and above as superior. For the purpose of comparison, he also selected average group and superior adult group. The educational level of fathers of superior children and superiority of the children were inter co-related. In the same way superiority and occupational level of the father were inter co-related. Superiority in intelligence was also studied in relation to the type of the family. Superior girls came in higher percentages from divided family while superior boys came in higher percentages from joint families. The size of the family and superiority of the child were independent. Superior students participated in much larger percentages in extra-curricular activities, scouting and N.C.C. in comparison to the participation by average pupils. Reading and writing preferences of superior pupils were many and varied. The leadership quality

and superiority were found to be independent.

Sheth S.M.[89] studied the problems of fifty gifted adolescent boys and girls from standard X and XII of secondary schools of rural and urban areas. He detected the problems of the gifted that cover a variety of aspects such as curriculum adjustment, trained staff, well equipped schools, emotional adjustment, identification of their talents, motivation, sex, reading room and reinforcement in the school.

Very recently Kalpana Pandit[78] studied the adjustment problems of the gifted and their reactions to frustration. She concluded that the adjustment of the gifted was superior to that of the non-gifted. The social adjustment of the gifted was inferior and in family adjustment they were on par with the non-gifted. The gifted girls seemed to be more adjusted than gifted boys. The differences in their overall adjustment were statistically significant. The reactions to experimentally produced frustration of the gifted and the non-gifted were significantly different.There was no sex differences with respect to their reactions to frustration. The gifted did not differ significantly from the non-gifted nor did boys from girls on their anxiety scores as a result of frustration. The majority of the non-gifted subjects showed aggression and withdrawal behaviour during the test period and after the test,

while the gifted children attempted to solve the problems intently and without emotions.

2.8 SOME STUDIES ON CREATIVITY

Guilford[46] related the abilities tapped by creative tests to the abilities and patterns of character traits possessed by the creative individuals. The pattern of creative abilities was postulated to vary with the sphere of creative ability.

Cattell[16] described the surgency correlate of fluency as being one of the sociability.The early replications of Cattell's findings by Eysenck led him to conclude that verbal fluency was related to extroversion, a personality type which incorporated traits of sociability and impulsivity The evidence continued to suggest that individuals who scored higher on fluency or creativity tests tended to be impulsive, social, talkative inhibited in addition to having wide range interests and prefering arts to sciences (Barron[6], Getzels and Jackson[38]).

Originality in general has been found correlating positively with introversion. Cattell while reviewing some of the silent features of creative scientists summarized his findings in terms of personality factors and concluded that the scientists of genius appeared to be introvert and stable.

On the whole one would expect that ability characteristic of introverted to withdraw, to exclude the outside world in long periods of concentrated thought and speculation, would outweigh the extroversion to communicate socially in creative scientists. However, contradictory evidence has been presented by White[123] that extroverts as defined by Cattell's 16 P.F., obtained higher scores on divergent test measures of flexibility, fluency and originality than the introverts. Similarly, the emotionality stable obtained higher scores than the neurotic personalities.

The review of research literature at present leads to conclude that creative thinking varies as a function personality typology in normal individuals.

A number of other investigations have been undertaken to study the relation of creativity on one hand and intelligence, achievement and personality on the other. Additional specific studies in this connection have been reviewed and referred to at appropriate places later on in next chapters devoted to the discussion of creativity in relation to these other variables.

2.9 SOME STUDIES ON CREATIVITY IN INDIA

Some of the studies conducted in India, have been recorded here.

Pramila Phatak[82] in her research article concluded that (1) creativity was moderately related to intelligence, (2) creativity did not show significant relationship with examination marks or with teacher's ranking on brightness; (3) developmental trend related to age was observed during the ages 9, 10, and 11 years. However, age and sex differences were not statistically significant as far as that group was concerned; (4) there was no association between creativity scores and educational attainments as measured by normal testing.

Gupta R.[51] studied creativity and its relation with intelligence. He found significant positive correlation among the four dimensions (fluency, flexibility, originality and elaboration) of creativity with intelligence. There was a low positive correlation of .25 between the measures of creativity and intelligence. It means that creativity and intelligence are two separate abilities and that one high on intelligence may or may not be high on creativity.

Rajalakshmi [86] studied the relationship between creativity and intelligence of industrial workers. She found tha creativity /bore no relation with intelligence.

Goyal R.P.[42] studied some personality traits of creative children at the middle school stage. His results revealed that the creative children at the middle school :

(1) possessed a high level of energy, (2) rejected repression and suppression for the control of impulses, (3) were more of introverts and independent in both thought and action, (4) had open minds and could tolerate ambiguity, and (5) entertained opposing values.

Shrividya[90] studied the personality characteristic of the creative person in industry. Her results suggested that (1) the high creativity group was higher on the personality traits of achievement viz., order, autonomy, dominance, change and nurturance than the low creativity group; (2) the high creative group was lower on intraception and heterosexuality than the low creative group; (3) there was no difference between high and low creativity groups on the personality traits of deference, exhibition, abasement, endurance, affiliation and aggression.

Dixit S.[25] studied anxiety in relation to divergent thinking abilities. The results pointed that some amount of anxiety was necessary for activising the divergent thinking abilities like flexibility and originality. His subjects were the students of B.Ed. class of 64 Universities. B.Ed. students were moderately anxious. He also found out that the group was low on divergent thinking abilities, but there

were a few exceptions.

Ahmed Najma [75] studied the personality correlates of creative girls at the middle school age. The results indicated that there was relationship between creativity and personality.

Muli Dhar Suwania[74] studied creativity among science and arts students of Class X in terms of dimensions of creativity (fluency, flexibility, originality and sensitivity). The students were between age of 14 years to 18 years. Their I.Q. were between 55 to 129 and scholastic achievement between 153-684 marks. The main findings were that (1) Arts and Science students were not found to differ significantly in their creative abilities: (2) no significant correlation was found between creativity and achievement (both groups).

Sudesh Gakhar[97] studied creativity as a function of interacting dimensions of extroversion and neuroticism among teacher trainees. The results revealed that introverts consistently performed better than extroverts on all three measures, namely, fluency, flexibility, originality and also on the total creativity. On the variable of neuroticism the stable were found to be more fluent, more flexible, more original and more creative. The most important finding to appear in this study was on interachonal effects: Stable extroverts were more fluent and more creative than stable

introverts. The neurotic extroverts were less fluent, flexible, original and creative than the neurotic introverts. Neuroticism was found to decrease the fluency of extroverts and increase the fluency of introverts.

Winding up the investigation on giftedness, creativity and personality of the gifted children, let us now go to the methodology of the investigation.
