PLAN AND PROCEDURE

CHAPTER 3 THREE

PLAN AND PROCEDURE

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3.1 Introduction

The concept of giftedness and talent, as pointed out earlier, has been expanded during the past few decades, with the development of more refined measuring instruments. This expanded notion of giftedness and talent continues to be expressed in terms of those abilities and expressions of high level performance that contribute to success in academic pursuits.

Longitudinal as well as cross-sectional studies have thrown light on the characteristics, achievement, motivation, identification, nature and development of giftedness and talent. The data revealed that children characteristically perform in outstanding

fashion, not only in academic or aesthetic fields but also in non-academic fields such as leadership, games and sports, various fields of arts, music, drama etc. In this study, emphasis was placed on both intellectual and non-intellectual forms of accomplishments in identifying talented, average and below average subjects.

The present investigation has been mainly concerned with studying identification patterns, motivation and school achievement of talented students. The purpose of undertaking this reseqrch is :

(1) To study the subjects' degree of identification with mother, father, teachers and peers.

(2) To study self achievement values of the subjects.

(3) To study models' achievement values attributed by the subjects.

(4) To study motivation to learn and behaviour orientation of the subjects.

(5) To study the relationships of identifications with models, models' achievement values, self achievement values, motivation to learn and behaviour orientation with actual achievement of the subjects.

(6) To determine relevant identification and modeling variables in motivating school achievement of the subjects.

(7) To study relationships between self achievement values and identification with models; models' achievement values; motivation to learn; and behaviour orientation.

The instruments are required to measure talented behaviour, motivation to learn, identification with models, self-achievement values, models' achievement values attributed by subjects and behaviour orientation.

The major difficulties which a researcher comes across in such studies is the lack of proper instrumentation and appropriate measurement techniques. There has been some progress in direction of preparing instruments for measurement. Yet these instruments are far from perfect.

The main reason for undertaking this study is that the area of identification patterns, motivation and school achievement of talented students is relatively unexplored in this country. Hence an attempt has been made here to study the degree of identification with models, self achievement values, models' achievement values attributed by subjects, motivation to learn, and behaviour orientation of talented subjects; and to find out how they differ from average and below average

subjects in respect of the above variables.

It is expected that sex factor and residence factor will be related to differences in degree of identification with models, self achievement values, models' achievement values attributed by subjects, motivation to learn and behaviour orientation among talented, average and below average subjects.

In section to follow details of sampling and preparation of tools are discussed. The general procedure for the investigation is also outlined.

3.2. Sample

An initial sample of 1100 high school students of eighth, ninth and tenth grades was randomly drawn from 24 Gujarati medium high schools located in Surat, Baroda, Kaira, and Mehsana districts of Gujarat State. Since most of the students were studying through Gujarati medium and since the tools were prepared in Gujarati language, only Gujarati medium schools were considered for sampling.

In order to ensure the representativeness of the sample, the following precautions were taken into

consideration :

(1) The investigator tried to cover entire population of the city or district by considering relevant places.

(2) Information about the number of grades and number of students in each grades of the high school were obtained.

(3) The investigator tried to see that all socio-economic population was adequately represented in the sample.

(4) The investigator tried to cover the subjects coming from families of all occupational and educational levels.

(5) Precautions were taken that all subjects were normal in regular class room and have no incapaciating physical or emotional defects.

In all twenty four high schools, twelve from rural area and twelve from urban areas were selected. In these twenty four high schools were included boys schools, girls schools and mixed schools.

In urban areas three mid-western cities viz., Baroda, Patan and Dabhoi were included in this study. The Baroda (1) city having population of 4,80000 includes a residential university with many faculties. It is a tourist and trade centre with both heavy and

light industries. It is a centre for cultural and athletic activities having its own cultural heritage. The Dabhoi (2) city having population of 37,892 is a historical place. It is a trade, tourist and academic centre for the surrounding villages. It is one of the biggest Narrow-Gauge Railway junctions. It is also a centre for small scale industries and raw cotton products. There are four colleges affiliated to Gujarat University, Ahmedabad.

The Patan (3) city having population of 64,519 is a historical place and at one time in the past it was a main city of Gujarat. It is a tourist, trade, and academic centre for the surrounding villages and districts. It is the biggest city of the North Gujarat. There are four college institutions affiliated to Gujarat University and a government polytechnic institution. In the past, the city was famous for the handicraft. It has a rich library known as 'Hemchandracharya Pathsala' having the books of 'Prakrit' and 'old Gujarati' literature. It is also a religious place and one of the big centres for agricultural products. Due to scarcity, feminine, and inadequate supply of water and power in this area, the development of this city was badly damaged.

The distribution of the high schools in these cities is uneven. In order to cover a wider range of population of all socio-economic status, occupational and educational levels, only those schools where students from many different areas of the city used to come for their education in these institutions were selected. Four high schools from each of the three cities mentioned above were selected for this purpose. The subjects were selected from eighth through tenth grades of the high schools.

There were twelve high schools in the rural area. Some of the high schools were in the interior and had, therefore, much less contact with the cities. Out of twelve high schools two high schools were located in Surat district, three in Baroda district, three in Kaira district and four in Mehsana district of Gujarat State. In order to cover a wider range of villages, the schools where students from many different villages came for their education were selected. The economy of the rural area was mainly dependent upon agricultural products and cattle rearing.

The subjects selected from the high schools of Baroda, Patan and Dabhoi were considered to form the urban sample

whereas the high schools located in villages were considered to form the rural sample.

Urban areas could be distinguished from rural areas in terms of the facilities and comforts provided in an area, and in terms of the influence of these factors in the day to day living of the subjects. The city is densely populated. It has a rapid communication system. The economic system is very complex. It has its own cultural heritage. In the rural areas the economic system is simple and mainly dependent upon agricultural products. The communication is greatly hampered due to lack of facilities. The influences of the progressive world is not very effective in bringing about a rapid change in rural life. Compared to rural area, urban area has more facilities for creative and constructive activities. In urban area, students have a choice in selecting the high school to be attended whereas in in rural area there is no such choice since the students have to attend the only available high school. Urban area has a distinct advantage of deriving stimulation from different sources. Rural community is slow in adapting to change, urban community in contrast, is constantly exposed to changes, particularly of social and

technological nature. Since the available range of opportunities in a rural community is severely limited, adolescents and young adults in rural areas are exposed to mostly occupations of conventional nature. The youth in the urban area are exposed to a wider range of academic stimuli and they are quick to seize the opportunities which held them in entering better prospects of their performance.

There are villages where even minimum educational facilities are not available. Those who can afford to send their children to cities for their education. In general, there is an intellectually improvised environment still prevailing in some of the villages. The schools sampled in this investigation from rural area were big enough to enable the students to study upto the S.S.C. class. Even in these places the opportunities were quite restricted in comparison to high schools in urban area. It was this observation which led the investigator to select high schools from both rural and urban areas.

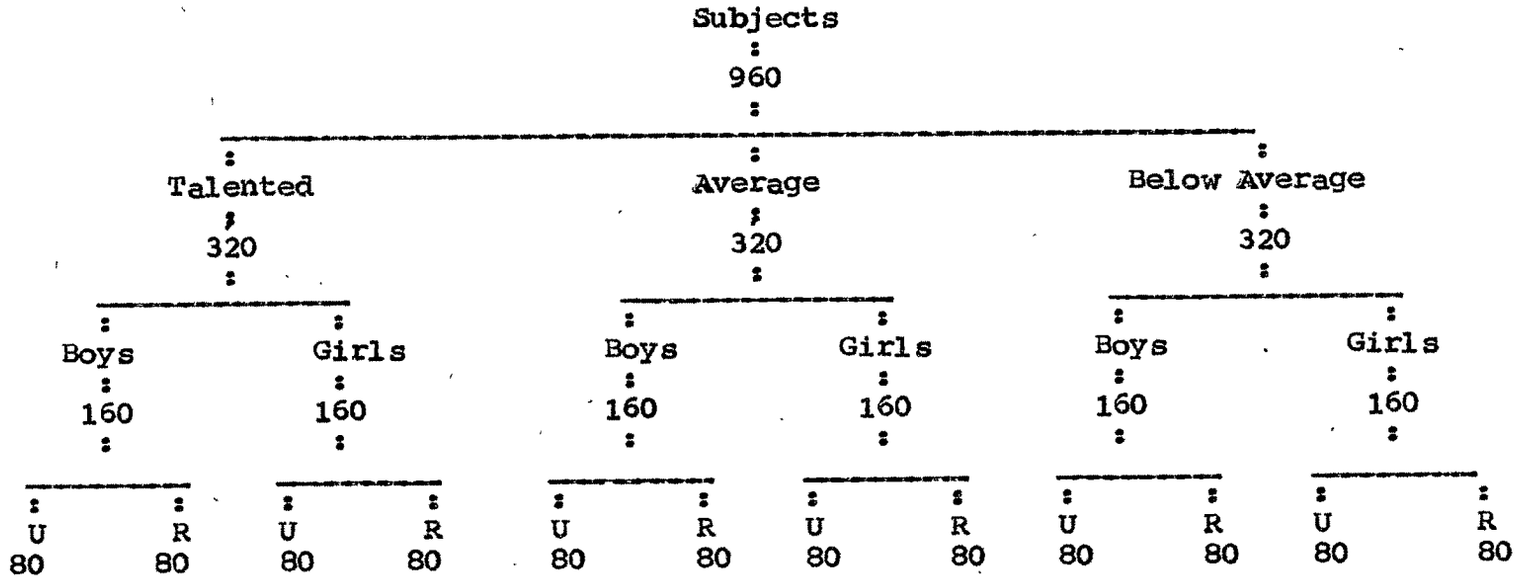
Subjects who remained absent in one or more tests or those who supplied incomplete information were rejected. Nearly 140 subjects were eliminated through this process.

The final sample of the present study consisted of 960 high school students. The subjects were then divided into three groups in accordance with the degree of talentedness they possessed. Each group consisted of 320 subjects.

In each main group there were sub-groups according to sex and residential area of the subjects. Thus, two levels of sex and two levels of residential area make four sub-groups of subjects. The reason for sampling both rural and urban high schools is already mentioned. The inclusion of sex is justified on the ground that boys and girls might differ with respect to the variables under investigation. The distribution of the subjects according to talentedness, sex and residential area is shown in Table 3.1.

As can be seen from the Table 3.1, the total sample of 960 subjects is divided into twelve sub-groups of 80 subjects in each group. Each of the three main groups of talentedness consists of 320 subjects. There are 480 boys and 480 girls. There are 480 subjects from the rural area and 480 subjects from an urban area.

Table 3.1. Distribution of the Sample



As mentioned earlier, the sample of the study was drawn from different schools in such a way that the population was adequately represented in it. The investigator tried to select subjects with varying background. The subjects came from families of all educational, occupational and socio-economic levels. The following Table 3.2 shows the distribution of subjects' fathers accordingly to their education.

Table 3.2. Educational Levels of the Subjects' Fathers in Percentage Form

Subjects	Illiterate %	Primary Education %	Secondary Education %	College Education %
Talented	2.2	20.0	41.5	36.3
Average	6.9	34.7	38.1	20.3
Below Average	7.8	45.0	39.1	8.1

It is seen from the above table that 2.2 percentage of fathers of talented subjects as against 6.9 percentage and 7.8 percentage of fathers of average and below average subjects respectively had not received any education. The percentage of fathers of talented, average, and below average subjects, receiving primary education are 20.0, 34.7 and 45.0 percentage respectively. It is also

seen from the table that 41.5 percent of fathers of talented subjects, 38.1 percent of fathers of average subjects and 39.1 percent of fathers of below-average subjects had received education upto secondary school level. Nearly 36.3 percent of fathers of talented subjects, 20.3 percent of fathers of average subjects and 8.1 percent of fathers of below-average subjects had received college education. Thus, it appears that the educational level of fathers of talented subjects is relatively higher than that of fathers of average and below-average subjects. The average group of subjects differs substantially from below average group in respect of fathers' education at primary and college levels.

The Table 3.3 below shows the mothers' educational level of talented, average and below average subjects.

Table 3.3. Educational Level of the Subjects' Mother of the Sample in Percentage form

Subjects	Level of Education			
	Illiterate %	Primary %	Secondary %	College %
Talented	12.2	52.4	32.2	3.2
Average	18.4	59.4	20.6	1.6
Below Average	24.6	61.3	13.4	0.7

The percentage of mothers who are illiterate, as seen from the table, is 24.6 in the case of below average subjects, 18.4 ih the case of average subjects and 12.2 in the case of talented subjects. Similarly, 52.4 percent of mothers of talented subjects as against 59.4 percent of mothers of average subjects and 61.3 percent of mothers of below average subjects had received primary education. The percentages of mothers who had received high school education are 32.2 in the case of talented subjects, 20.6 in the case of average subjects and 13.4 in the case of below average subjects. In the case of talented group, 3.2 percent of mothers, had received college education. The corresponding percentages of mothers in the average and below average groups are 1.6 and 0.7 respectively. Thus, greater proportion of mothers of below average group is illiterate as compared to mothers of average and talented subjects. Moreover, mothers of talented subjects are more highly educated than those of average and below average subjects.

The data in Tables 3.4 and 3.5 show occupational and income levels of the subjects' families respectively.

Table 3.4. The Occupational Level of the Subjects' Family in Percentage Form

Subjects	Labourer or Worker %	Cultivator %	Service %	Business %	Professional %
Talented	5.0	17.7	31.9	31.9	13.5
Average	10.4	23.7	20.9	32.2	7.8
Below Average	9.7	32.8	23.8	29.9	3.8

Table 3.5. Income (in Rupees) of the Subjects' Family in Percentage Form

Subjects	Income Range in Rs.		
	Below Rs. 2000 %	Between Rs. 2000 to 5000 %	Above Rs. 5000 or I.T. Payer %
Talented	8.5	25.3	66.2
Average	22.1	36.9	41.0
Below Average	33.8	36.9	29.3

The data in Table 3.4 reveal that talented subjects come from all occupational levels but a majority of them come from families whose occupation is either service or business. Approximately 58.0 percent of families of average subjects are engaged in service or business and approximately

54 percent of families of below average subjects are engaged in these occupations. The percentage of families with labour and cultivation as occupation of talented, average and below average subjects are approximately 23, 34 and 43 respectively. Similarly 13.5 percent of families of talented subjects as against 7.8 percent and 3.8 of families of average and below average subjects respectively are engaged in high level occupations.

As can be seen from Table 3.5 the income level of the families of talented subjects is higher than those of average and below average subjects. Slightly more than 66 percent of the parents of talented subjects and 41 percent of the parents of average subjects have more than Rs. 5000 annual income. Nearly 37 percent of families of average and below average subjects fall in income category ranging from rupees 2000 to Rs. 5000 whereas 33.8 families of below average subjects as against 22.1 percent and 8.5 percent of families of average and talented subjects respectively have less than Rs. 2000 annual income.

Considering the overall distributions of families according to income and occupation, it is seen that the subjects come from all socio-economic levels. Talented subjects

are little more fortunate in comparison to average or below average subjects in that they come from families whose socio-economic level is relatively higher. It is widely accepted that the parental occupation and income profoundly influence the development of children. One thing that clearly emerges from the data reported in Tables 3.2, 3.3, 3.4 and 3.5 is that majority of the talented subjects come from better homes.

In this investigation students from eighth, ninth and tenth grades were used as subjects. The reason for selecting the students of these grades is that they are in a stage which represents a transition from earlier dependency upon parents to a more peer-oriented and more independent self-directed system of values. The age of the students varied from twelve to eighteen years.

The girls growing up in a home where they are in contact with mothers most of the time are perhaps in a better position to identify their appropriate role. In our cultures certain ways of behaving are appropriate only for girls whereas other ways of behaving are considered suitable for only boys. It is expected that the identification patterns, motivation and school achievement value of boys and girls would differ in view of difference in sex role identification. It is with this

consideration in mind that both boys and girls were selected as subjects. In general all subjects were divided into sub-groups according to their sex and residential area.

3.3. Tools Used

Tools are needed for the assessment of talented behaviour, academic achievement, motivation to learn, identification with models, school achievement values and behaviour orientation. Preparing tools for the assessment of relatively more comprehensive concepts like giftedness and talent, motivation and identification is a difficult task. As pointed out earlier, research in this area suffers from lack of proper instrumentation. Those which are developed and used by researchers are not free from methodological flows. Moreover, the concepts of motivation, identification and giftedness and talent need to be defined with great precision and care. It is, therefore, necessary to examine the nature of the instrument and items which compose the instrument. Most investigator make use of their own tools to suit their purpose according to the problem under investigation. In this investigation tools were constructed to assess talented behaviour, motivation to learn, identification with models, school achievement values and behaviour orientation. The various

tools used in this investigation are described below.

(a) Assessment of Talented Behaviour :

Talented behaviour was assessed in terms of the following :

(1) IQ scores on Desai-Bhatt Group Test of Intelligence.(4)

(2) Behaviour Check List. An instrument of twenty seven items was developed for this purpose.

(3) Teachers' Nomination.

(4) Performance of extracurricular activities.

(b) Assessment of School Achievement :

Subject's school marks on two tests were taken into consideration for this purpose.

(c) Assessment of Motivation to Learn :

An objective test for assessment of motivation to learn known as ' Junior Index of Motivation (JIM) ' was developed by Jack R. Frymier (5).JIM was modified and translated into Gujarati language to suit the needs of Gujarati speaking students. The final test 'Index of Motivation' consisted of forty three items which were selected on the basis of results on item analysis. The scoring key was developed empirically. This test was used to assess motivation to learn in school.

(d) Assessment of Identification with Models :

An instrument of twenty items was developed to assess the subject's identification with mother, father, teachers and peers.

(e) Assessment of School Achievement Values :

An instrument consisting of fifteen school achievement related items was developed to assess subject's own achievement values and achievement values attributed by the subject to each identifying model..

(f) Assessment of Behaviour Orientation :

An instrument consisting of forty items with ten items each of the academic orientation, peer affiliation orientation, non-conformity orientation and independent orientation was developed for this purpose. These four orientations taken together constitute behaviour orientation.

3.3. (a) Assessment of Talented Behaviour

As reported in an introductory chapter, identification of gifted and talented children by means of a single test like any standardized test of intelligence is

not justified. The decision that a child is gifted or talented is the outcome of many observations and the use of a variety of fact-finding techniques (6). The use of multiple criteria for identifying talented is becoming more wide spread. Some of the recent studies have emphasized the non-academic forms of talented accomplishments. In the present investigation too the intellectual and non-intellectual forms of talented accomplishments were considered while selecting the subjects. Terman (7), for example, asked teachers to nominate three most intelligent pupils in their classes and to state reasons for the nominations. Others investigators have recommended the use of teachers' judgment, achievement, grade averages, extracurricular activities and IQ scores for identifying gifted children. Among the techniques used to identify talented children are included standardized tests and inventories, teachers' judgment, trait check-lists, self-rating scales, socio-metric devices, anecdotal records and observation technique. In this investigation the identification of talented students was based on intelligence test, teachers' judgment, behaviour check-list and performance on extra-curricular activities.

(1) Intelligence Test : It was pointed out earlier that the sample of this investigation was drawn from Gujarati speaking population. It was, therefore, decided to use Desai-Bhatt Group Test of Intelligence which is recently revised in 1968 and standardized on Gujarati speaking population (4). The Test is constructed for students studying in eighth through eleventh grades within age-range from twelve to eighteen years. There are hundred and ten items including ten practice items in the test. The total time allowed for the whole test is forty minutes. The standardization sample consisted of 5,654 Gujarati speaking population in which 3,001 were boys and 2,651 were girls of the various districts of Gujarat State, India. The test is verbal and simple in administration. Instructions are printed in the test book-let. Split-half and test-retest reliability coefficients of the test are .93 and .84 respectively. The test was validated against both verbal and non-verbal intelligence tests constructed by other researchers. The test correlated to the extent of .88 with the verbal test and to the extent of .77 with the non-verbal test. Both percentile and mental age norms are given. For the purpose of the present investigation mental age norms were used. Separate

answersheets are provided for the purpose of recording the answers.

The IQ determined as per specifications in 'Desai-Bhatt Group Test of Intelligence,' described above was used to demarcate talented, average and below average students. Accordingly, students with an IQ 120 and above were regarded as talented, those with 90 to 110 IQ were regarded as average and those between 70 to 89 IQ range were regarded as below-average subjects.

(2) Teachers' Judgment : Teachers who have daily contact with children are in a better position to make judgments of their abilities to observe sign of giftedness and talent, to study their records and to collect new information about them (6). Teachers have many opportunities to observe each student and have experience to make comparisons between students. Teachers are humans and their judgments rest largely on impressions. Their perception are likely to be coloured by their own subjective experiences. Hence teachers' judgment may be biased or even prejudiced. Unless teachers are given some criteria or guide lines for judging, their judgment may lack objectivity as each teacher is left free to his own criteria for making such judgments.

Commonly used pressure for selecting children as talented, average and below-average is to request teachers

to list pupils in these categories, and to indicate the reasons for making nominations. There is considerable evidence to indicate that if teachers were given some instruction about what to look for and provided guidelines, they can do the task very effectively. Jack Kough (8) has drawn up a list of twelve items and recommended for the use of teachers in discovering most promising students in their classes of high schools. Recently, Kenneth and Jean (9) also drew up a fourteen item list utilized by teachers as guidelines in identifying superior students.

In this study teachers judgments were used as a supplementary aid in selecting students as talented, average and below-average. A eight-item list of the behaviour characteristic of talented students was prepared for the guideline of teachers in selection of students. The list provided to teachers was as under :

(1) Learns rapidly and easily.
(2) Asks many questions.
(3) Is leader in various activities.
(4) Shows originality, initiative and intellectual craving.
(5) Uses large vocabulary, easily and accurately.
(6) Have won prizes in sports, music, drama etc.

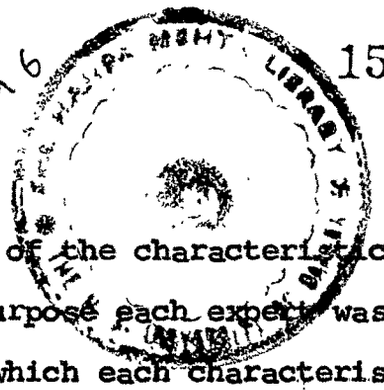
(7) Have wide range of interest and fund of information.

(8) Is alert and quick to recognize relationships.

The teachers were requested by the investigator to nominate three to five students from eighth through tenth grade for each of the three categories of talentedness. They were requested to keep in mind the list of characteristics supplied to them for making judgments.

(3) Behaviour Check List : Self-report instrument for assessing talented behaviour was developed in the format of behaviour check list and it was administered to the subjects with instruction to rate themselves on a three-point scale.

Traits or characteristics descriptive of the talented behaviour were invited from students, teachers, educationalists and psychologists. The final list was prepared by considering the opinions expressed by teachers, students, specialists and also by reviewing the relevant literature in the field. The recommendations made by some of the specialists in the field were taken into account while preparing the list. A few competent persons were then



requested to judge the relevance of the characteristics included in the list. For this purpose each expert was asked to indicate the degree to which each characteristic indicated talented performance. The experts were asked to rate each characteristic on a three point scale with three indicating the highest degree and one indicating the lowest degree of talented performance. Based on the judgments of these experts eighty behaviour trait names were selected. These trait names were then used for preparing items descriptive of talented performance. These items were given to six competent judges who were asked to determine the relevance of each item for the test. Each judge was also asked to indicate the degree to which each item indicated the underlying characteristic. They were also asked to indicate irrelevant, ambiguous or vague items. Items which were judged relevant for the test by all judges were retained. Fifty items finally survived through this process. Items were so worded as to suit the vocabulary of students of eighth grade. Ten randomly selected students of eighth grade were asked to read the item pool thoroughly and to point out the difficult words. The list was further modified so as to make it simpler and easy for the understanding of the

students. Some of the words which the students still found difficult at the time of taking the test were explained at that time. In an effort to identify discriminating items, these fifty items were administered to two different groups of students differing in talented performance defined in terms of scores on intelligence tests, teachers' judgment and non-academic performance. Each group consisted of fifty subjects. Subjects in each group were asked to mark each item on a three point scale with ' 3 ' denoting the highest degree and ' 1 ' denoting the lowest degree of 'talent' actually possessed by them. The number of subjects of each group falling in each of the three response categories was obtained and a chi-square was computed for each item. Items with significant chi-square values were retained and those with insignificant values were rejected (10). The final Talented Behaviour Check-list consisted of twenty seven items. The Talented Behaviour Check-list was not timed, but it took about twenty minutes to complete it.

The reliability of the test was determined by the retest procedure. For this purpose the test was administered twice to an independent sample of hundred students with an

interval of six weeks between the two administrations. The reliability estimated by this procedure was .791 which appears to be quite high. The Talented Behaviour Check-list is shown in Appendix B and its English version is shown in Appendix B_1.

The subject's score on this test was simply the sum of scores on each individual item. The highest possible score was 81 and the lowest possible score was 27. The higher score indicated greater talent on this test.

(4) Performance of Extracurricular Activities : No test was prepared for the measurement of non-academic performance but subjects' level of performance was judged by ascertaining whether he took part in such activities as sports, games, debate, music, drawing etc. or not. Subjects who participated in most of these activities and won some prizes in the first or second rank were designated as talented subjects, those who participated in some of these activities were designated as average students and those who never participated in any of these activities were designated as below average subjects. Information regarding the extent of participation in extra

academic activities like the ones mentioned above was obtained from each respondents who was then designated as talented, average and below average depending his level of performance.

Thus four criteria were used for classifying the subjects as talented, average and below average. The manner in which the groups were formed on the basis of these four criteria is indicated as shown below in Table 3.6.

Table 3.6. Table showing Criteria used in Identifying Talented, Average and Below Average Subjects

	Subjects		
	Talented	Average	Below Average
Scores on Intelligence Test	120 and above	90 to 110	70 to 89
Scores on Behaviour Check-list	60 and above	50 to 59	Below 49
Teachers' Judgment	Nominated as Talented	Nominated as average	Nominated as below average
Extra academic performance	Must have taken part in most of the activities and won first or second prizes	Must have taken part in some activities	Those who have not taken part in such activities

As can be seen from the above table those with IQ of 120 and above were designated as talented, those with IQ between 90 and 110 were designated as average and those with IQ between 70 and 80 were designated as below average subjects. This classification is strictly in accordance with the specifications in the test manual of Desai and Bhatt Group Test of Intelligence (4). In order to be designated as talented subject, it is not enough that he should have an IQ of 120 or above. Subject must also obtain on the Behaviour Check list a score of 60 and above. It should be recalled here that the Behaviour Check list consisted of 27 items to be rated by the subject on a three point scale. These 27 items were carefully selected through item analysis as discussed earlier. Besides, the subject must be nominated by the teacher as talented. The teacher was supplied a list of characteristics in order to enable him to base his judgment on something relevant and concrete rather than leaving him on his own to make judgment on the basis of overall subjective impression that he might have formed about the subject. In addition to these three criteria it was also ascertained whether the subjects' talent is expressed in extra academic performance or not. For this

purpose subjects' participation in games, sports, debate, music, drama, drawing etc. was assessed. The reason for limiting to only these activities is that opportunities are freely available to practically all the students for participating in these activities. Whether or not the performance on these activities is actually related with talent remains to be established. But it is reasonable to assume that talented subjects would readily seize the opportunity which enable them to express their talent and try to excel in them. Thus a talented subject is one whose IQ is 120 or above, whose score on Behaviour Check list is 60 or more, who is designated by the teacher as talented and who has participated in extra curricular activities and won prizes. The four criteria were strictly used for designating the subjects as talented, average and below-average. The term 'below average' should not be taken to mean that subjects falling in these categories are mentally retarded. The reason for fixing up the limit of 120 IQ for designating a person as talented are already in an introductory chapter.

3.3. (B) Assessment of School Achievement

No standardized achievement test was used for the measurement of school achievement. Instead, it was decided to use examination marks obtained by the subjects at two

tests including the terminal test. Annual examination marks were not taken into account since the subjects were tested on various instruments in the middle of the year. Whether terminal examination or annual examination, examination marks prove to be unreliable to serve as an index of the subjects' school achievement. There are many factors which are selectively operating on the subjects' performance in the examination. In order, therefore, to use them, marks of two tests were considered and not of one test. The subjects' school achievement was simply the average of marks obtained by the subject at two tests. While it is true that educational achievement as measured in terms of examination marks do not reflect the performance on the basis of talent, it is used here mainly to see how variables like identification, motivation, achievement value etc. are related to it in different groups representing differing degree of talent.

3.3. (C) Assessment of Motivation to Learn

An objective tool 'Index of Motivation' of forty three items was developed for assessing subjects' motivation to learn. Most objective tools of academic motivation present stimuli in the form of verbal questions or statements to which the subject replies by selecting the appropriate

response from the available alternatives such as True-False, Agree-Disagree, Like me-Unlike me. Objective tools of academic motivation, derived from item analysis of large pools of items and validated by their ability to discriminate among pre-defined groups of people, hold some promose for reliable, easy to administer, fast and easily scorable measures. Items for the 'Index of Motivation' were developed by reviewing the literature and by referring to the measurement rationale of Frymier and others (25). An objective test for the assessment of academic motivation known as 'Junior Index of Motivation (JIM) Scale' standardized by Frymier formed the main source of this objective tool, from which items were adapted with modification to suit the needs of Gujarati speaking students in Indian setting. JIM Scale consists of 80 agree-disagree items out of which only 50 are scored. Frymier reports a series of research efforts relating to the development and validation of the 'JIM Scale' for use with secondary school and college youth. Underlying the overall research design of 'JIM Scale' there were certain theoretical and operational assumptions which are made while developing items. These assumptions are as follows :

(1) What ever causes one to try to do good work in school comes primarily from within rather than without.

(2) Whatever the motivation or force is, it is probably rooted in one's personality structure, attitudinal structure, value structure and curiosity.

(3) Motivation toward school would include (i) Attitude toward school, (ii) extent to which education is valued, (iii) feeling for other people, (iv) concern for material things, (v) sense of personal determination, (vi) attitude toward the self among other things.

(4) Values are of prime importance in academic motivation.

The operational assumptions which relate to the nature of instrument and the items which compose the instrument are given below :

(5) Instrument to be developed should be 'conventional' in nature, that is verbal, typical and reasonably short. Items should be short and easy to respond to, and relatively unambiguous.

(6) Items should be phrased in such a way that they would be at least practically projective in nature. Each item should be phrased so that it would seem to apply to 'most people', or & 'some people', or 'for example', or is completely impersonal altogether.

(7) The scale being devised would have utility and validity as a whole, this projective approach would contribute to the usefulness and acceptability of the final scale.

(8) The responses to a particular item in a particular way should not indicate a priority direction of students' motivation or its degree.

(9) Ascertaining more effectively the intensity of motivation, as well as the direction, requires a Likert-type response of items instead of true-false or agree-disagree forms of responses.

In an effort to identify discriminating items, the items were administered successively to two different groups of students whose motivation toward school was known to differ. Items which were found to be discriminating between the two groups were further studied in order to know the direction in which they responded to by both high and low motivated subjects. The reliability studies of the JIM Scale showed internal consistency, and the test-retest study proved it to be dependable.

Based on the rationale adapted by Frymier in the development of the original JIM scale, the investigator developed 90 items in Gujarati language with suitable modifications in the original items of the JIM scale. Items were so worded as to suit the vocabulary of students of eighth grade. Ten randomly selected students of eighth grade were asked to read the item pool thoroughly and to point out the difficult words. Most of the subjects found the items easy to

understand. However, a few items were reworded in order to make them more meaningful and consistent with the prevailing vocabulary.

Five experts in the field of education and psychology were asked to judge these 90 items for their relevance to the test. They were asked to indicate irrelevant, ambiguous or vague items. Based on their judgment, fifty seven items were finally selected and others were discarded.

In an effort to identify discriminating items, teachers who were in close contact with students, and who were actively engaged in teaching these students were asked to identify high motivated and low motivated youngsters in their classes on the basis of their experience with them. Teachers estimated the degree of their students' motivation, and on the basis of their judgment two groups representing extreme levels of motivation were formed. Each group consisted of 50 students. The test of 57 items was administered to both the groups. The extent to which each item discriminated between high motivated and low motivated students was determined by computing chi-square. The chi-square values of 43 out of 57 items were significant beyond .05 level of confidence (11). These forty three items were finally selected and used to determine motivation of the subjects. It was found by the investigator

in a preliminary try out that the test required about twenty-five minutes for its completion.

Reliability of the test was measured by test-retest method. Fifty randomly selected students were given the final form of forty three items and retested after six weeks. Reliability coefficient of the test was .773 which appears to be quite satisfactory.

While administering the test the following instructions were given to the students. Read each statement very carefully and indicate your own opinion regarding the statement by encircling on any one of the four figures against each statement.

> If you strongly agree with the statement encircle '4', if you slightly agree encircle '3', if you slightly disagree encircle '2' and if you strongly disagree encircle '1'.

Responses were scored in accordance with the key developed on the basis of responses of high and low motivated subjects. Accordingly, strong agreement responses was scored -2, slight agreement response was scored -1, slight disagreement response was scored +1 and strong disagreement response was scored as +2.

Total score was obtained for each subject by algrebrically summing the scores on all the 43 items. In order to remove negative sign a constant value of 100 was added algebrically to each score.The responses were so scored that the higher score indicated greater motivation. The range of possible motivation score is from 14 to 186.

The test is shown in Appendix C and its English version is shown in Appendix C_1.

3.3. (D) Assessment of Identification with Models

For the assessment of identification with models twenty behaviour referrent items were developed. The School Attitude Research Instrument (SARI) of 59 Likert-type items was developed by Ringness (12) for assessment of identification with models and school achievement value. In the present study thirty items for the assessment of identification with mother, father, teachers and peers were developed by reviewing relevant literature and researches in the field. The instrument developed for the purpose was in line with that developed by Ringness. The items included in the test depicted various manifestations of identification. Items were so worded as to suit the vocabulary of

eighth grade students. The relevance of items was determined on the basis of the opinions of a few experts who were asked to rate each of the thirty items on a five point scale denoting the extent to which the item indicated the degree of identification, if endorsed. Experts were also asked to point out irrelevant or ambiguous items. Based on the judgment of the experts, twenty items were finally selected.

The subjects were provided four columns against each item in a tabular form each for mother, father, teachers; and peers' identification. Subjects were asked to assign numbers one through five as directed in the instruction, in each of these columns for each item, accoreing to the degree to which the subject had adopted the characteristic behaviour or activities from each of the identifying figures, considering them as 'ideal models' for adopting attributed or characteristics. The direction and intensity of a subject's identification was reflected by totalling his responses to all of the items in each column. In this case the Likert-type response pattern was employed (13). Accordingly a score of '1' indicated no identification at all, and a score of '5' indicated highest degree of identification. Similarly

scores of 2, 3, and 4 indicated increasing degree of identification. The sum of numbers assigned by the subject to the items in each column constituted the relative identification score for him. More specifically, identification score for each of the identifying models was simply the sum of ratings made by him on 20 items. Thus, the test yielded four identification scores respectively for mother, father, teachers, and peers. The highest possible score for each of the identifying models was 100 and the lowest possible score was 20.

The subjects' consistency in responding to the items was checked in terms of his responses to five additional items also pertaining to identification. The reliability of the test was measured by test-retest method. For this purpose, the test was administered to an independent group of 50 students twice with an interval of six weeks between the two administrations. The reliability coefficient obtained by correlating the two sets of scores were .81 for mother identification, .74 for father identification, .78 for teachers identification and .71 for peers identification. Thus, the test proves to be quite reliable.

This test is shown in Appendix E and its English version is shown in Appendix E_1.

3.3. (E) Assessment of School Achievement Values

An instrument 'Achievement Value Items' consisted of 15 school achievement related items to be rated on a five point scale was developed for this purpose by reviewing the literature on academic achievement and parent-child relationship. Reference was also made particularly to the studies conducted by Ringness (12) and Taylor's Review (14) on personality traits related to discrepent school achievement. Twenty five items similar to those used by Ringness in 'The School Attitude Research Instrument' (12) were developed by the investigator. The developed items were such that value judgments could be made in reference to them. As in the case of identification, items for achievement values were judged by a few experts for their relevance. The experts were also asked to indicate to what extent the item depicted achievement value, if endorsed by the subject. They were asked to assign to an item a weightage of 'five' if it indicated the highest degree of achievement value and weightage of 'one' if it indicated the lowest degree of achievement value. This procedure was followed in

order to ascertain whether the items were related to achievement or not. Fifteen items were finally selected through this procedure.

Five columns labelled as self, mother, father, teachers and peers were provided against each item. Subjects were asked to assign numbers one through five in each of these five columns for each item according to the degree to which the subject valued school achievement and the extent to which he thought his parents, teachers and peers held values for school achievement.

The score for the student's self achievement value as well as achievement value attributed by him to each identifying model was obtained separately by totalling his responses to all items of each column. Thus, the test yielded five school achievement values scores respectively for self, mother, father, teachers and peers. The highest possible school achievement values score was 75 and the lowest possible score was 15. The reliability of the test was determined by test-retest procedure. Fifty randomly selected students were given final form of fifteen items and retested after six weeks. The reliability coefficient of the test was .76 for self achievement values, .78 for for mother achievement value, .73 for

father achievement values, .75 for teachers achievement values and .70 for peers achievement values. The school achievement values test - 'Achievement Value Items' - is shown in Appendix D and its English version is shown in Appendix D_1.

3.3. (F) Assessment of Behaviour Orientation

The term 'Behaviour Orientation' denotes the ways in which the subjects behave in certain situations. It is an indicator of how the subjects say they behave, rather than their motivation perse. Ringness defined behaviour orientation as subjects' statement of ways they typically behave (12) . A self-report instrument 'Behaviour Orientation' consisting of forty items was developed to assess behaviour orientation in the format of verbal statement reflecting behaviour in terms of which the subject can actively and introspectively evaluate himself. It comprised the following four dimensions :

(i) Academic Achievement Orientation.
(ii) Peer Affiliation Orientation.
(iii) Non-Conformity Orientation.
(iv) Independence Orientation.

Sixty items were developed carefully by reviewing the literature in the field. Reference was also made

particularly to studies conducted by Ringness (12), McGuire and others (15). The relevance of items and the degree to which they depicted underlying characteristics were ascertained in terms of the opinions and judgment made by a few experts. Based on the judgment of experts, finally forty items were selected for the assessment of the above four mentioned dimensions. Each of the four dimensions was studied in terms of ten items.

In an effort to ascertain more effectively the intensity of behaviour orientation as well as its direction, it was employed Likert-type response patterns (13). Accordingly, '1' indicated the least degree of behaviour, and '5' indicated highest degree of the underlying behaviour characteristics. Similarly 2, 3 and 4 indicated increasing degree of behaviour orientation.

The reliability of the test was determined by test-retest method. For this purpose the test was administered to an independent sample of sixty students with an interval of six weeks between the two administrations. The reliability estimated by this procedures was .81 for the academic achievement dimension, .74 for the peer-affiliation orientation, .84 for non-conformity orientation, and .71 for

the dimension of Independence Orientation.

The 'Behaviour Orientation' instrument was not timed, but it took about twenty-five minutes to complete it. Subjects were asked to assess to what extent the matter of the statement regarding craving to do was related to him by encircling the figure shown against each statement.

Score was obtained for each of the four dimensions for the subject by summing the responses to the respective items of a dimension. The highest possible score on each dimension is 50 and the lowest possible score is 10. The 'Behaviour Orientation' test is shown in Appendix F and its English version is shown in Appendix F_1.

3.4. Administration of the Tools

The tools were administered in three sessions. In the first session group intelligence test was administered to those who were nominated as talented, average and below average in terms of certain specific criteria supplied to the teachers for nomination. They were also administered the behaviour check list. Information regarding extra-curricular activities and personal data was also obtained.

On the basis of this information subjects were divided in three groups as talented, average and below-average.

In the second session the tests measuring identification and achievement values were administered. The total time that the subjects required to complete both the tests was approximately one hour.

In the third session 'Index of Motivation' and 'Behaviour Orientation' tests were administered. These tests also required approximately one hour for their completion.

Administration of the tools in three sessions was necessary in order to sustain interest and motivation of the subjects and to avoid the feeling of fatigue and boredom. The data thus obtained were subjected to statistical analysis.

Some specific issues that are studied in this investigation :

In general, the present investigation was carried out to study the following specific issues :

(i) Students' degree of identification with mother, father, teachers and peers.

(ii) School achievement values attributed by the subjects to each identifying model.

(iii) Subjects' own achievement values.

(iv) Subjects' motivation toward school and behaviour orientation.

(v) Determination of the relevant identification and modeling variables which might account for achievement differences.

(vi) Relationships between subjects' own achievement values and identification with models, models' achievement values attributed by subjects, motivation to learn, behaviour orientation; and actual achievement.

3.5. Summary

The present investigation was undertaken to study identification patterns, motivation and school achievement of talented students. The purpose of this investigation was to study the subjects' degree of identification with models, self-achievement values, models' achievement values attributed by subjects, behaviour orientation and motivation to learn in school achievement of talented boys and girls of both urban and rural residence. It also tries

to find out how talented subjects differ from average and below average subjects in respect of the above variables.

In all 960 subjects from 24 high schools were selected. They were divided into three main groups as talented, average and below average subjects of 320 subjects in each group. They were further divided into four sub-groups - two levels of sex and two levels of residential area - of 80 subjects in each sub-group. Tools and tests used in this investigation were also described.

CHAPTER 3

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