CHAPTER IV

METHOD

The main aim of the study was to compare under-, and higher achievers of four sub-cultural groups on certain socio-psychological variables. Most people have a tendency to compare groups with various levels of academic achievement without taking into account their intellectual levels. If intellectual levels are not taken into consideration, it makes one liable to fall into a methodological trap of comparing two unequal groups. That is the compared groups may, in fact, be intellectually different groups and their academic performance might be the result of their intellectual levels rather than of the variables under consideration.

SAMPLE:

The present study sets-out to compare the "equally bright" higher-, and under-achievers. In other words attempts was made to include only those students of four groups who were of average intelligence range but belonged to either lower, or higher-achieving groups. This would be in line with Brower's (1967 p. 299) argument. He says "Academic under achievement is a significant and sustained disparity between capacity and performance it obtains when measured intelligence contradicts class-tests, achievement tests and teachers' impression."

Having Brower's thinking in mind, the first task of the present investigation became the identification of about four hundred subjects of average intelligence level.

Mohsin's (1968) General Intelligence Test was used for this purpose. Initially, the test was administered on a larger sample of 550 students reading in eight different schools located in tribal and non-tribal areas of Bihar. The selected schools roughly matched among themselves for (i) standard of teaching, (ii) quality of students, and (iii) socio-economic status. However, geographically, they were widely distributed in rural, semi-urban and urban areas. Such a geographical distribution was a deliberate attempt to compare students belonging to different habitat background. Distribution of students with location and the number of students selected from each school are shown in Table 1:

TABLE-1: Details of the Initial Sample:

No.	Name of High Schools.	Habitat.	Geographical Location.	Number of Sample.
1.	Pataliputra	NT - U	Patna	125
2.	Masaurhi	NT - R	Masaurhi, Dist. Patna	100
3.	Nadwan	NT - R	Nadwan, Dist. Patna	55
4.	St. Paul	T - U	Ranchi	65
5.	Goshnar	T - U	Ranchi	55
6.	Ratu	T - R	Ratu, Dist. Ranchi	100
7.	Kanke	T - R	Kanke, Dist. Ranchi	50
			Total:	550

NT-Non-Tribal; T-Tribal; U-Urban; R-Rural

TESTS USED:

General Intelligence Test:

As mentioned above, Mohsin's Tests of General Intelligence was used to identify the high-, and low-academic achievers of average intelligence level. Though, there are various types of intelligence tests available in psychological literature, Mohsin's test was preferred because the test has been constructed, validated and standerdized in the same state where the present work was conducted. Also, Mohsin's test is most popularly used test of intelligence in that particular geographical location.

Mohsin's test has six sub-tests. There are a total of 156 items. The items have been distributed sub-test wise as noted in the following table: 2:

TABLE-2: Details Regarding the Mohsin's General Intelligence Test:

Sub-tests	No.of items	Time taken (minute's)
1. Best answer	20	5
2. Clarification	30	5
3. Analogy	40	8
4. Logical reasoning	22	8
5. Sentence completion	26	7
6. Reasoning	28	10
Total:	166	43

The test-retest and internal consistency reliabilities of the test have been reported to be 0.89 and 0.95, respectively. It has been validated against different tests as well as against school examinations' marks. Its correlation co-efficient was found to be 0.54 with Manzel's General Intelligence Test (Non-Verbal), 0.63 with Zerman's Arithmatical Reasoning, 0.66 with Raven's Progressive Matrices (Non-Verbal), and 0.56 with school examination marks. It gives what has been called "The Index of Brightness" on the pattern of I.Q. to indicate the general intelligence level of students.

Administration of Mohsin's test on 550 students helped in identification of 392 students of average brightness. The distribution of Index of Brightness (I.B.) scores of the total sample is shown in Table 3:

TABLE- 3: Scores' Distribution of Total Sample of 550 Students:

Class interval of I.B.	Frequency
115 - 119	36
110 - 114	56
105 - 109	97
100 - 104	102
95 - 99	98
90 - 94	87
85 - 89	46
80 - 84	28
	550

The average intelligence range was considered between the I.B. scores of 92 and 109. This range gave a total of 392 students. Out of these 392 students, 384 usable forms, complete in all respects, were obtained. These 384 students served as sample for the rest of the study.

School marks for two consecutive examinations (prior to this study of the 384 students of average I.B. were collected from school records. It was aimed at selecting at least 96 students from each of the rural tribal, urban tribal, rural

non-tribal, and urban non-tribal groups from within the range of "average" I.B. scores. The distribution of subjects across different groups falling in different categories of I.B. range have been presented in Table 4 :

TABLE-4 : Scores Distribution of the Subjects Belonging to Four Sub-cultural Groups:

Class interval of I.B. Scores	Frequencies				Total
	T-U	T-R	NT-U	NT-R	
105 - 109	22	28	22	25	97
100 - 104	25	28	27	22	102
95 - 99	22	20	29	27	98
90 - 94	27	20	18	22	87
Total:	96	96	96	96	384

As mentioned earlier, the aim was to select about hundred subjects (High-achievers = 50, Low achievers = 50) from each group. For this purpose the median values of the average of two consecutive school examination records were calculated. However, the constraints of usable available forms made it imperative to select only 384 subjects belonging to different groups. In other words, 48 students from each group were selected. Distribution of the final sample for the present study across four groups and high-, and low-achievers has been reported in Table 5:

TABLE- 5: Sample Distribution of High and Low Achievers Across Four Sub-cultural Groups:

Achievement level	NT-U	NT-R	T-U	T-R	Total
High Achievers	48	48	48	48	192
Low Achievers	48	48	48	48	192
Total:	96	96	96	96	384

Ages of the sample ranged from 12.5 to 19.6 years. The mean age of the total sample came to be 14.86 years. The mean ages of the four groups were as follows:

Non-tribal Urban	-	13.95 years
Non-tribal Rural	-	14.25 years
Tribal Urban	-	15.35 years
Tribal Rural	-	15.90 years

For the purpose of the present study, it was felt that three popular tests needed some editing and adaptation. These tests are Certainty of Judgement Questionnaire, Orientation-Inventory, and Behaviour Orientation Scale. We have a well known test to measure risk-taking behaviour by Kogen & Wallach (1964). Its Hindi translation is also available. However, experience shows that this is not very appropriate for the school going students in Indian rural areas. For this reason, it was decided to construct a new scale for the purpose. The details of the methodologies followed in each case will be described later. Here, it may suffice to mention that the draft

Hindi version of all these tests were randomly given to about 125 students, picked up from amongst a total of 550 students. That means, while Mohsin's test was administered to all 550 students, other tests were given to 125 students only.

The various instruments used in the study are described below:

Orientation Inventory:

The orientation inventory was originally designed by Bass (1962). It contained three types of Orientations-Task-, Interaction-, and Self-orientation. The test was adapted in Hindi by Jha (1977). Bass has defined the three orientations in the following ways:

(i) Task-orientation: Task oriented persons have been portrayed as those individuals "who are most attracted to a group of expectations of task-success and its rewards. They are individuals who would be reinforced primarily by task effectiveness. They are likely to be concerned about getting the job done, solving the group's external problems, and working with persistance on the barriers preventing the group from obtaining success."

(ii) Interaction-orientation: Interaction oriented individuals are those who get "rewards from the satisfaction of the interaction with others. They are likely to be less concerned about getting the job done and about

striving for succeeding in solving the group's external problems. Merely maintaining harmonious, conflict free relationship with others" are the most satisfying situations to the interaction-oriented persons.

(iii) Self-orientation: Self-oriented persons are "attracted to groups in the expectation of direct reward to themselwes regardless of the task of interaction effectiveness of the group."

The original inventory created by Bass (1962) had 27 triade. He reported the odd-even reliability co-efficients as 0.50, 0.70 and 0.64 for self-, Interaction-, and Task-orientation, respectively. Test-retest reliability values for the Self-, Interaction-, and Task-orientations were 0.73, 0.76 and 0.75, respectively. The original inventory has been widely validated in several studies (Bass, 1962, 1967).

Jha (1977) adapted the test in Hindi. In his adaptation, seven items of the original test were dropped because of their non-suitability in the Indian Cultural situation. He also added some new items. That means, Jha's adaptation comprised 29 items. After item analyses, he could retain only 25 items. He retained the same method of scoring as that of Bass. Jha obtained odd-even reliability co-efficients as 0.72, 0.79 and 0.71 for Task-, Self-, and Interaction - orientation, respectively.

Test-retest reliability (1 week gap) obtained by Jha came to be 0.79, 0.74 and 0.75 for Task-, Self-, and Interaction-orientation, respectively.

Jha tested the validity of the Hindi verson of the test against the criterion of teachers' ratings. In majority of the cases, orientation scores very well conformed with that of teachers' ratings.

For the present purpose, Jha's test was used with some very minor modifications. For example, one item No. 10 of his test was dropped. Besides, the following minor changes were also introduced in the wording and approaches:

1. As in Jha's test	Modification in the present test
1. Item No.8: बचपन में मुझे आनंद आता था... (I used to enjoy in the childhood...)	Item No.8: मुझे आनंद आता है... (I enjoy...)
2. Item No.12: b. अपने कार्य से स्वयं संतुष्ट होना (To be self satisfied with my work)	Item No.11: b. अपना कार्य अपनी संतुष्टि के साथ करना (To do my work to my own satisfaction)
3. Item No.16: b. नई बातों के अच्छे पहलू को स्वीकार नहीं करने की ज़िद से... (Resistance to accept good points of new ideas)	Item No.15: b. अगर कोई बातों के अच्छे पहलू को स्वीकार नहीं करने की ज़िद करे... (If some body insists to not to accept good aspects of an argument.)

4.	Item No. 19: निर्णय ऐसे हों जिन्हें अधिकारी महत्व दें (Decisions should be such that superiors should give it weightage)	Item No. 18: निर्णय ऐसे हों जिन्हें हमारे बड़े/अधिकारी महत्व दें। (Decisions should be such that our elders/superiors should give importance to them.
5.	Item No. 20: आप ऐसी पुस्तक पढ़ना पसंद करेंगे (What types of books you will like to read...)	Item No. 19: मैं ऐसी पुस्तक पढ़ना पसंद करूंगा (I would like to read such books as...)
6.	Item No. 21: आप क्या पसंद करेंगे ? (What will you prefer...) a. छात्रों को संगीत सिखाना (To teach pupil music)	Item No. 20: मैं पसंद करूंगा... (I would like...) a. संगीत सीखना (To learn music)
7.	Item No. 22: अवकाश के समय कौन-सा कार्य आपके लिए संतोषप्रद होगा ?... (During leisure, what activity will be satisfying to you...)	Item No. 21: अवकाश के समय मेरे लिए यह कार्य संतोषप्रद होगा... (During leisure time, following activity will be satisfying to me...)
8.	Item No. 23: मैं उस अधिकारी को पसंद करता हूं जो... (I like that superior who...)	Item No. 22: मैं उस शिक्षक को पसंद करता हूं जो... (I like that teacher who...)

The present version of the test, as modified by the present researcher, was put to reliability tests. Split-half reliability scores for odd-even items were calculated for all the three orientation tests. The results indicated reliability values for the three scales as follows:

Minor modification in Scoring System was also introduced. Instead of 0, 1 and 2 scores for marked most, un-marked and marked least, respectively, in original, it was decided to alocate 1, 2, and 3, respectively, for the three categories of answers.

Orientation Scales	Reliability Values
1. Task-orientation	0.48
2. Self-orientation	0.60
3. Interaction-orientation	0.82

The test has been given in Appendix-E.

Certainty of Judgement Scale (C-J Scale):

When a person makes a judgement, he, some times, may not be sure about his decision. However, one's levels of confidence in his judgement has very wide ramification in his day-to-day behaviour. There have been several studies which have demonstrated the importance of confidence in levels of their judgement with such variables as social adjustment, sociability, ascendency, responsibility, emotional stability, academic achievement etc. (for example, Krishna, 1972, Singh, 1980, Kogan & Wallach, 1964).

Obviously, due to its wide implication, it was expected that the confidence level in one's judgement has an important role in students' academic achievement. This was probably the line of thinking which promoted Singh (1980) to study this variable with reference to academic achievements of schedule caste, backward caste and forward caste groups.

Krishna (1972) first translated the Kogan & Wallach's (1964) test of certainty of judgement in Hindi in order to be able to study this important personality dimension of the local population with confidence and reliability.

He worked out for its internal consistency and reliability and after applying S - B formula found the reliability value of .84. The reliability values of the original test worked out by Kogan and Wallach were .89 and .92 for male and female samples, respectively.

The scale (C-J Scale) was originally doveloped by Bem (1955) and was adapted by Kogan and Wallach (1964). The Kogan-Wallach test consisted of 50 statements about various events cast in the following form: "The chance that...are about in 100." The subjects were supposed to fill in a probability value for each statement and to indicate their level of certainty for each judgement by checking one of the five alternatives, namely, 'Very Sure', 'quite sure', 'moderately sure', 'slightly sure' or 'not at all sure'. These alternatives were weighted from five to one, respectively, on the line of Likert's technique. Higher value reflected greater confidence in the subject. The possible range of scores for the full test was from a minimum of 50 to a maximum of 250 (5 x 50 = 250).

Next attempt to simplify the test for Indian sample was made by Singh (1980). He examined each of the translated statements of Krishna (1972) on three criteria:

1. Simplicity of language in understanding;
2. Simplicity level of the problems (message of the items) for its proper understanding; and

3. Relevance of the items for a potential subject belonging to average -,middle-, or lower-class Indian family.

He adopted the last criteria with a view to make it more widely applicable in Indian situations. For example, it was unlikely that an item like "Possibility of a Television set in every home in hundred is....." would be fully grasped by subject of poor or lower middle class Indian family (when that research was conducted, Television was a rarety in Indian set-up). So, he decided to drop such items. This helped him to reduce the length of the original test from 50 items to 40 items. Further item analyses on a sample of 554 students reduced the test to a mere 30 significant items.

The present study proposed to bring about a further improvement in the test. It was felt that with the passage of time (since Singh did his research) that brought about changes in societal conditions and also because of the different nature of the sample, for the present work, this test warranted some modifications. For example an item like एम॰ ए॰ पास करने के बाद नौकरी मिलने की संभावना सौ में .... है ।

(Probablity of getting a job after passing M.A. in 100 is .....) was not considered very suitable for a high school tribal student, and was dropped.

In the present research, more or less, Singh's (1980) procedure was followed for the revision of the test. In brief, 8 of the 30 items of Singh's revised scale were dropped, one item was modified and two new items were added.

(i) Item Selection:

As the first step, each item of the test was carefully examined in collaboration with two other Psychologists and two language (Hindi) experts. Each item was examined on the following criteria:

1. Simplicity of language in understanding;
2. Simplicity level of the problems (message of the items for its proper understanding); and
3. Relevance of the items for a potential subject belonging to average middle-, or lower-class family and a tribal family in India.

The last criterion was adopted with a view to make it more widely acceptable for the present sample. For example, it was unlikely that an item like "probability of a car tyre being white instead of black in 100 is..." would be fully grasped by a tribal subject, so it was decided to drop such items. The scrutiny of all the above mentioned criteria suggested at least eight of the Singh's revised scale as redundent and were dropped. Two new items were added (Items No.23 and 24, see the copy of the test in Appendix-D). Singh's

item No.9 was changed as "Probability of every body in India having a car in 100 is..." (Item 22). In this way, the present researcher ended-up with 24 items for use in the present study.

(ii) Procedure:

The 24-item test was administered randomly to 120 high school students from among the 550 students as mentioned earlier. Their responses were measured on a 5-point scale ranging as: 'very sure', 'quite sure', 'moderately sure', 'slightly sure', or 'not at all sure'. The test was administered in class-room like situations. However, not more than 20 students were allowed to sit in one group at a time.

(iii) Reliability:

Reliability statistics were calculated on the scores of only 100 subjects. The reliability of the 24-items test was calculated through split-half method (Guilford, 1954). The split-half reliability of .83 was obtained.

(iv) Validity:

The degree to which a test measures what it proposes to measure may be called its intrinsic validity (Guilford, 1954, p.399). Guilford suggested that this validity is indicated by the square root of the proportion of true variance (in other words, the square root of its reliability). The split-half

reliability co-efficient of the present test was .83. Hence, the intrinsic validity of the present test yielded to be .91. Thus, the test has fairly high intrinsic validity.

(v) Conclusion:

The above results apparently showed that the present revised version of the test was sufficiently reliable and was adequately valid. It may be emphasised here, that the present version of the test has certain advantages over the test of Kogan and Wallach (1964) or that of Krishna (1972) or even that of Singh (1980) for its use with Indian sample. The test developed by Kogan and Wallach had its limitation of language for its use on Indian population. Singh claimed in his work (1980, p.77) that his revised version was much superior to Krishna's test because of its simplicity of language and shorter length. Reliability co-efficients, in both cases, were around .80. By the same logic, the present revision of the test may be considered superior to even Singh's test because it used simpler and more relevant language and is shorter in size by 6 items (in comparison to Singh's revision). And, of course, reliability value was again .83 i.e. the same as obtained by Singh.

Assessment of Behaviour Orientation (ABO) Scale:

'Assessment of behaviour orientation' (ABO) scale developed by Patel (1974) was modified for our purpose. 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 (1970) defined behaviour orientation as subjects' statement of the ways they typically behave.

A self-report instrument-'Behaviour orientation scale' consisting of forty items was developed by Patel (1974) to assess the behaviour orientation. The statements were in the format of verbal statement reflecting behaviour orientation in which the subjects can actively and introspectively evaluate themselves. It comprised the following four dimensions:

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

Originally, Patel (1974) developed sixty items by reviewing the literature in the field. Reference was also made to studies conducted by Ringness (1970) and McGuire and others (1961). The relevance of items and the degree to which they depicted underlying characteristics were ascertained in terms of the opinions and judgement made by a few experts. Based on the judgement of experts, he finally selected forty items for the assessment of the above four mentioned dimensions. Each of the four dimensions was studied by a set of ten items.

*Two shorter forms of the name as (i) Academic orientation; and (ii) 'achievement orientation' have also been used in later writings.

In an effort to ascertain more effectively the intensity of behaviour orientation as well as its direction, Likert-type response patterns (Likert, 1932) was employed. Accordingly, '1' indicated the least degree of behaviour, and '5' indicated the 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 Patel (1974) by employing 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 procedure was .81 for the academic achievement orientation, .74 for the peer-affiliation orientation, .84 for non-conformity orientation, and .71 for the dimension of independence orientation.

For the present purpose, the test developed by Patel (1974) was translated into Hindi with the help of two experts from psychology who had equal command on Hindi and English languages. This Hindi verson of the test was put to item analysis on data collected on one hundred respondents. Inter-item correlation technique within each dimension resulted into retention of 32 items. In other words, eight items (2 items from each dimension) were dropped. Item Nos. 3 and 4 from the first dimension, 11 and 13 from second dimension, 31 and 32 from the third dimension and 38 and 40

from the fourth dimension were dropped.

This version of 32 edited items was subjected to split-half reliability for each dimension. The reliability scores worked out on 100 subjects' responses were obtained as .74 for the Academic achievement orientation dimension, .61 for Peer-affiliation-orientation, .78 for Non-conformity-orientation, and .79 for Independence-orientation dimension.

In view of the shorter version of the test and its fairly high reliability values for each dimension, it may be safely concluded that this shorter version can be conveniently used for research purposes.

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

The scores were obtained for each of the four dimensions by summing the responses to the respective items belonging to a particular dimension. The highest possible score on each dimension could be 40 and the lowest possible score could be 8. The test is shown in Appendix-C.

Risk-Taking Questionnaire:

One of the most famous and widely used test of risk-taking behaviour was constructed by Kogan and Wallach. The test is known as Choice Dilemma Questionnaire. This has set in a long tradition of research (for example, Kogan, Lamm and Trommsdorff, 1969; Singh, 1980; Rule & Besier, 1970). In India also, some significant researches have been reported Krishna (1972) translated Kogan and Wallach test in Hindi. Yousuf (1973) translated 4 most risky items of Kogan and Wallach test and found a split-half reliability value of .70. Singh (1980) modified Yousuf's translated version and reduced it to a three-item test. Singh not only reduced the item from 4 to 3, but also modified the language. Besides the above, he brought about a significant change in the response categories as well as in scoring pattern. In the original test of Kogan and Wallach (1964) as well as in revised versions of Krishna (1972) and Yousuf (1973), the subjects were asked to indicate the odds for success against probability levels comprising following alternatives; 1 in 10, 3 in 10, 5 in 10, 7 in 10 and 9 in 10. There was also an additional category for each item in which the subject is required to indicate whether he feels that the risky course of action should not be attempted no matter what the probability of success was. An individual total score is obtained by counting the probabilities indicated for each item. Contrary to this method, Singh used only 5 alternative responses to be used by the respondents. However, the original items were retained. Singh could obtain Hoyt's

reliability to the tune of .80.

The present researcher decided to have her own scale to measure risk-taking orientation of the subjects (See Appendices G and G1). Since, the present sample belonged to student population, it was felt that a test suitable for them should be designed. She ventured into the test construction task by following the same pattern as that of Kogan and Wallach. That means, initially, 12 items of semi-projective nature were developed to assess risk-taking behaviour or performance under certain outcomes representing socially approved acts. The situations selected for each item were hypothetical although they depicted real life occurrences in which a fictitious person has to choose between a risky or a conservative course of action. In other words, one has to make a decision between two aspects; he should choose the work which has got certain outcome, or he should select a course of action of uncertain outcome in an anticipation to achieve more than this if he could get a permanent job. That is, the risky choice was construed to be more desirable, but also they have lesser chance of success. For example, the item No. 1 of the test read as follows:

"In the decade of 1970, students of several universities and colleges went on strike. This decade was a decade of students' unrest. Even students' riots took place at certain places in a city. Students' riot in one of the colleges, took a serious turn. The principal of the college

was away in another city to participate in a principals' conference to discuss student unrest. Although, he got the news of violence in his college through radio and newspapers his other colleagues, teachers and office staff in his college, telephonically advised him that it was not necessary for him to return immediately because the situation was improving. They said, there are other people also on the campus who may control the situation. Still, there is some possibility of deterioration of the situation also."

The above question item depicts a principal under a choice dilemma situation wherein he has to make a choice between two alternatives; (a) continue attending the principals' conference and let others manage the situation which might deteriorate, or (b) to come back to the college immediately to control the situation and miss the chance of beeing a party of principals' collective decision about how to control the students unrest. The respondent of the test are supposed to indicate what the odds for success would have to be before he would advise the fictitious person to go for the risky alternatives. It is presumed that the "regard for the desirability of success relative to the dis-utility of failure" is reflected by an individual advice to others.

Item analysis:

As mentioned above, a 14-items questionnaire was constructed. This questionnaire was administered to a group of 120 students of the same sample which was to be covered

finally. The responses were used for item analysis. For item analysis, each item's scores were correlated with the total scores (total of 14 items). Only those items which yielded a correlation value of more than .40 and were significant at .01 level were retained. This process finally dropped 4 items and we were left with 10 items to be used in the final test form.

The central themes and decision area for the remaining 10 items of Risk-taking questionnaire have been given in the following table:

TABLE- 6: Central Themes and Decision Area of Items of Risk Taking Questionnaire:

Item	Central Theme	Decision area
1.	Principal's absence	To get involved in controlling strike.
2.	Vice-Chancellor's dilemma	Changing examination system.
3.	Undergraduate student	Joining a job and leaving study incomplete.
4.	Higher Secondary Examinee	Choice to take private tution.
5.	Engineering Student, Son of successful businessman	Investing in industry choosing vocation.
6.	Young lame person	Leg operation.
7.	Post-graduate student	Appearing in examination.
8.	Competitive youth	Risky competition
9.	Mountaineering group	Choosing a route.
10.	An unemployed youth	Career choice.

The respondents were given 5 alternatives to make responses. They had to respond against the probability of 25-, 50-, 75-, and 100 per cent chances of success. Scoring pattern for the test is as indicated in Table No. 7:

TABLE-7: Scoring Pattern of Risk Taking Questionnaire:

Probabilities of per cent of success	Score
25 per cent	5
50 per cent	4
75 per cent	3
100 per cent	2
Should not take risk category	1

Factor Analysis of the Test:

The test data collected on 120 subjects were put to computerized factor analysis. The result output have been summarised in the following tables.

First item correlation matrix for each items was prepared. These have been presented in the Table 8

Inter-correlation matrix indicated that item No. 1 was significantly correlated with items Nos. 5,7 and 9, though in

TABLE-8: Inter-correlation Matrix for 10 Items:

1	2	3	4	5	6	7	8	9	10
1	-.018	.077	.069	.236*	.097	.229*	.074	.220*	-.021
2		.052	.026	.031	.203*	.378*	.066	.173*	.170*
3			.323*	.312*	.185*	.074	.108	.053	.207*
4				.125*	.064	.080	.063	-.008	.084
5					-.012	.069	.094	.177*	0051
6						.214*	.069	.208*	.318*
7							.174*	.192*	.257*
8								.132*	.083
9									.218*

* Significant Correlations.

all cases, correlation value was very low (around .2). Similarly, the second item significantly correlated with items Nos.6,7,9 and 10. Item No.3 significantly correlated with items Nos.4,5,6 and 10. Item No.4 significantly correlated with items Nos.3 and 5. Item No.5 significantly correlated with items Nos.1,3,4 and 9. Item No.6 significantly correlated with Items Nos.2,3,7,8,9 and 10. Item No.7 significantly correlated with items Nos.1,2,6,8, 9 and 10. Item No.8 significantly correlated with items Nos.7 and 9. Item No.9 significantly correlated with items Nos.1,2,5,6,7, 8 and 10. Item No.10 significantly correlated with items Nos.2, 3, 6, 7 and 9. In brief, items 7 and 9 yielded maximum number of significant correlations. However, in almost all cases correlation values were very low.

After this, the above correlation values were subjected to factor-analysis using principal component analysis. The computer analyses yielded 3 sets of factors as detailed in Table 9.

As mentioned earlier, the factor analysis of items yielded 3 factors. That is, Items Nos.2, 6, 7, 8, 9 and 10 clusterred into one group of factors, whereas, Item Nos.3, 4 and 5 clusterred together to form the second group of factors. Item No.1, emerged as an independent factor on its own.

TABLE-9: Factor loading, Eigen values and cumulatives of different items:

Item Nos.	Eigen value	Cumulative	Factor-1	Factor-2	Factor-3
7	.42	.507	.622	-.314	.146
10	.37	.501	.559	.228	-.370
6	.36	.434	.545	-.277	-.245
9	.35	.447	.528	.135	.387
3	.45	.684	.484	.543	-.392
2	.31	.435	.477	-.450	-.074
5	.48	.559	.389	.578	.272
1	.58	.609	.375	.255	.635
8	.23	.145	.345	.059	.151
4	.42	.511	.311	.501	-.404
	Variance Explained		2.246	1.397	1.191

However, as the inter-item correlation matrix indicated, there seems to be a good amount of overlapping in terms of correlations between items across various factors. That means, there may be a good amount of internal relationships between various factors. In view of this possibility, the entire test has been treated as one single scale and not as three sub-scales for analysis purpose.

For the above mentioned reasons, reliability and the validity of the test was worked out for the whole test and not for each factor, separately.

Reliability:

The whole scale of 10 items was administered to 120 subjects for obtaining the reliability of the scale. Cronsblack's α (Alpha) statistics yielded a reliability value of .66.

Validity:

Guilford (1954, p.399) suggested that the intrinsic validity of a test is indicated by the square-root of the reliability. That means, the intrinsic validity of the scale came to be ($\sqrt{.66}$) .81. Both the reliability and the validity of the scale may be considered fairly high for the present purpose.

Sentence Completion Test (SCT) of Achievement Motivation:

Need for achievement (N-Ach) is a necessary condition for academic or, for that matter, any type of excellence. We have employed Mukherjee's (1965) Sentence Completion Test (SCT) for achievement motivation. It is a paper pencil type test which may, perhaps, be more objective then McClelland test (McClelland et al, 1962). Mukherjee's SCT consists of 50 forced-choice triads. In these triads, only one of the three alternatives reflects achievement related motivation while the other two indicated some different aspects of manifest needs. These items have been so selected that they are supposed to minimise the "Social desirability" response bias. These triads are of sentence completion type.

The respondents had to complete the sentence by opting for two of the three given alternatives. However, while scoring, only one of the two selected items is to be scored for n-Ach. That means, only when the subject fills up the gap with n-Ach. alternative, he is given score of 1 for the item. Answer given for such alternatives are summed-up to get the total achievement motivation score. In other words, the respondents' scores on the SCT are the number of items choosen reflecting achievement related responses. The possible range of scores on the test could be 0 to 50. High score on SCT meant high achievement motivation. That is, respondent scoring high on SCT are the ones who by words and habit indicated a desire to compete successfully with excellence in their respective areas of activities. "High score on SCT is interpreted as a keen desire to compete successfully with a standard of excellence, an expressed interest in undertaking difficult and challenging task and a strong sense of optimism." (Mukherjee, 1969). The internal consistancy reliability of the test, stepped-up by S-B formula was found to be 0.58. A copy of the test and its scoring key are appended (See Appendix -).

ACADEMIC MOTIVATION:

Brookover, Paterson and Thomas (1962) gave us a widely used scale to study the relationship between self-concept of academic ability and school achievement. Singh (1976) made use of this inventory in preparing his own inventory "to measure self-concept of academic motivation." The

Operational definition of academic motivation given by Singh (1976) indicated "The level of motivation of a student to perform well in examination, i.e., the strength of his desire to score high marks in examinations. This measure is an index of specific academic motivation as distinguished from a measure of general achievement motivation" (p.51). His academic motivation scale consisted of eight multiple-choice items. The Hindi version of this scale (Singh, 1976) has a test-re-test reliability value of .88.

A copy of the scale and the scoring key is given in Appendices F and F1.

Background Factors:

A personal data-blank (Appendix-A) was attached with the questionnaire - test booklet to elicit some information regarding background demographic factors such as (1) name, (2) class in which they were studying, (3) schools to which they belonged, (4) age, (5) habitation, (6) number of sibling, (7) ordinal position, (8) social status, (9) father's education, (10) father's occupation, (11) family monthly income, and (12) tribal and non-tribal classification. However, for analyses purposes only the following demographic variables were taken up:

(1) Habitation, (2) Number of sibling, (3) Ordinal position, (4) Social status, (5) Father's education, (6) Father's occupation, (7) Monthly income, and (8) Tribal and non-tribal classification.

The basic aim of the study was to examine the psychological variables associated with under-, and higher-achievers of four sub-cultural groups. There has been a general tendency, particularly among the Indian authors, to study various academic achievement groups without taking into consideration their intellectual levels. This seems rather an inadequate approach. Hence, it is proposed that the study will cover a group which is generally called "equally bright achieving and under achieving" students. Thus, in this study, an attempt is made to include only those students of the four sub-cultural groups who would be of average intellectual capacity, but belonging to either higher-achieving group or to under-achieving group.

PROCEDURE:

First of all, as described earlier, sample for the present study were selected on the basis of their brightness index obtained by Dr. Mohsin's test of "General Intelligence."

As a next step, six psychological tests were used. For this purpose, five standard tests were identified. They were: (1) Orientation inventory, (2) Academic motivation test, (3) Sentence completion test of achievement motivation, (4) Confidence of judgement scale, and (5) Behaviour orientation scale. One new test to measure risk-taking among the subjects was prepared for use in this study. As a trial run and also to get the reliability of the various

tests, these tests were administered to the sample. Although, most of the selected tests were earlier well tested by their respective authors and by others, it was decided to do this excercise as a matter of extra caution. It was also necessary because some of these tests and scales were either revised or specially prepared by the present researcher for the purpose of the present study. The detailed procedure for getting the reliability of the tests have already been described above.

In the next step, a test-booklet comprising all the above mentioned tests alongwith a short questionnaire seeking information related to demographic aspects of the respondents were administered to 384 selected respondents. The test-booklets were distributed to the respondents in the class-room situation. Each group comprised 20 to 21 students. Entire text-booklets were filled in in two sessions. In the first session, the respondents filled the biodata blanks, academic motivation test, behaviour motivation and confidence of judgement scale. In the second sitting, they completed the orientation inventory, sentence completion test of achievement motivation and risk-taking questionnaire.

Although none of the tests was time-test yet the subjects were instructed to complete the tests as fast as they could. In general, they took about one hour in each session to complete the filling job.

Before the test-booklets were given to the subjects, sincere attempts were made (with each group) to stablish good rapport between the respondents and the researcher by creating a congenial environment and by explaining to them entire purpose and procedure of the study.

A standardised instruction sheet was prepared and was read in the class to instruct the subjects as to how to respond on the text booklet. The same instruction sheet was used in all groups. If there was any question or clarification sought by the respondents then the point was explained to their satisfaction.

DATA ANALYSES:

After collection of the questionnaire, the data were coded on the master data-sheet for transferring them to the computer. As per requirements of the data and the needs of the objectives of the study, various statistical techniques were used for data analysis. The techniques used were, mainly; mean, median, S.D., *t*-test, chi-square, analysis of variance, correlation, regression analysis, factor analysis, etc.

In the next chapter, the results of the data analyses have been presented.