CHAPTER II

METHODOLOGY
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The present study was undertaken with a view to investigating the level of achievement motivation and creativity and their relationship in social 'stars' and social 'isolates'.

2.1 Sample

The sample for the present study was drawn from the provincialised schools of rural area. Out of the 27 schools approximately 16,000 students were taken as sample to identify the 'stars' and 'isolates'. The sample consisted of students belonging to standard of class VIII, class IX and class X.

The age group taken for the sample was 12 to 16 years of both sexes. Sociometrically the investigator selected 143 'stars' and 'isolates'. The investigator used the sociometry twice after a gap of one year. Henceforth, the investigator enlisted them as 'stars' and 'isolates' who were found in alike social position for both the times.

At the final stage only scores obtained by 120 subjects of which 60 'stars' and 60 'isolates' could be employed for statistical treatments. The 'stars' sample consisted of 30 boys and 30 girls and similarly the 'isolates' sample consisted of 30 boys and 30 girls. The following table shows the sample.
The choice of the sample for this study was guided by major objectives of the present research namely to identify the 'stars' and 'isolates' and to find out the scores on Achievement motivation and creativity tests. In actual practice the variables included were the following—sex, age, social position, father's occupation and father's educational level.

2.2 Tools

The following tools used in the study—

1. Sociometric Technique—to identify the 'stars' and 'isolates'.
2. Rse's Achievement Motivation Test—to find out level of Achievement motivation.
3. Verbal Test of Creative Thinking—to find out the level of creativity.

2.2.1 Sociometric Technique

The sociometric technique developed by J.L. Moreno (1953) is a most simple technique used in this present study.
At the time of administration the subject is asked to name his best friends' names with a view to measuring the interpersonal attraction in the group. The question contains in the technique is a direct one and is not threatening question. There is no time limit for answering the question. To collect the necessary information about the subjects, the subjects are asked to write down the name, class, roll no., father's occupation, age and father's educational standard.

The number of times each group member is chosen by others is an index to his attractiveness. Similarly, each individual can be rated in terms of the extent to which he is disliked or ignored. This approach to gathering data was termed as sociometry by its developer Moreno (1934).

Sociometric data reported by the subjects in terms of the numbers of choices received by a given group members. This method allows one to see at a glance those members who are highly regarded by the other as the 'stars' and those who are ignored or rejected are called the 'isolates'.

2.2.2 Rao's Achievement Motivation Test

This test was developed and standardised by Gopal Rao. It was slightly modified to suit the local pattern of life and existing traditional practices. This test was translated into the Assamese language so that students might have
better comprehension of ideas contained in them and thereby enhance genuineness of respondent's.

The test consists of twenty incomplete sentences to complete each of which two alternative (a) and (b) are offered. Respondents are free to choose any one of the alternatives which suit their taste, opinions etc. Though both the alternatives are achievement oriented and socially acceptable, yet one of them implies a higher sense of achievement and excellence. No time limit is provided. Generally from 8 to 10 minutes complete answering by the respondents.

The test reliability was established through the test retest method by the present investigator and was found to be 0.78. This was also administered by the investigator for his M. Phil dissertation to the same categories of student population.

2.2.3 Verbal test of creative thinking

The verbal test was a part of the total battery which comprised of verbal and non-verbal tests. This test was developed and standardised by Bagur Mehdí.

The verbal test of creativity included four sub-tests namely,

(i) Consequences test
(ii) Unusual uses test
(iii) New relationship test
(iv) Product improvement test

2.2.3.1 (i) Consequences test

The consequences test consists of three hypothetical situations.
(a) What would happen if man could fly like birds?
(b) What would happen if our schools had wheels?
(c) What would happen if man does not have any need for food?

The subject is required to think as many consequences of these situations as he can, and write them under each situation in the space provided. The situations being hypothetical minimize the effect to experience and also provide the subject with an unlimited opportunity to make responses. The test encourages free play of imagination and originality. Before the test is started the subjects were acquainted with an example according to the instruction given in the instruction sheet. The time allowed for the three problems is 4 minutes each.

2.2.3.2 (ii) Unusual uses test

This test present the subject with the names of three common objects—a piece of stone, a wooden stick and water and requires him to write as many novel, interesting and uses of those objects as he may think of. The example
given on the test booklet properly acquaints the subjects, with the nature of the test. This test measures the subjects’ ability to retrieve items of information from his personal information in storage. The time allowed for three tasks is 5 minutes each.

2.2.3.3 (iii) New relationship test

This test presents the subject with three pairs of words apparently different, tree and house, chair and ladder, air and water and requires him to think and write as many novel relationships as possible between the two objects of each pair in the space provided. The test provides an opportunity for the free play of imagination and originality. The time allowed for each pair of words is 5 minutes.

2.2.3.4 (iv) Product improvement test

In this test the subject is asked to think of a sample toy of a horse and suggest addition of new things to it to make it more interesting for children to play. The time allowed is 6 minutes.

The total time required for administering the test is 48 minutes in addition to the time necessary for giving instruction passing out test materials to children and collecting them back.
Tryout was done in a sample of 50 students to find out the reliability. The test retest indices of reliability were .76, .71, .74, .69 respectively consequences test, unusual uses test, new relationship test and product improvement test. The total test retest index of reliability was .74.

2.3 Experimental design

A factorial between group design (2x2x2) for study was employed with two levels each of class (stars and isolates), sex (boys and girls), age (younger and older). The dependent variables was achievement motivation and creativity. The factors were as follows:

1. Class
   - stars/isolates
   - df = 2
2. Sex
   - boys/girls
   - df = 2
3. Age
   - younger/older
   - df = 2

Scores obtained were interpreted by applying technique of a two way analysis of variance. The main effects and interaction effects were as follows:

<table>
<thead>
<tr>
<th>Main effects</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sources</td>
<td></td>
</tr>
<tr>
<td>Class (2)</td>
<td>(2-1) = 1</td>
</tr>
<tr>
<td>Sex (2)</td>
<td>(2-1) = 1</td>
</tr>
<tr>
<td>Age (2)</td>
<td>(2-1) = 1</td>
</tr>
</tbody>
</table>
2.4 Procedure

First of all, the investigator approached to the Inspector of School of Kamrup District Circle with a view to having the necessary permission to collect data from the rural schools of Kamrup District. Prior to administering the present test, the investigator received the necessary permission from the Head of the concerned institution. In all cases, the Head of the institutions and teachers of the concerned school assisted in doing the works smoothly.

The test materials were presented to the subjects in the following order—Sociometric Technique, Verbal Test of Creative Thinking and Rao's Achievement Motivation Test.

All the tests were administered in their regular class room setting to groups of students. In all the cases the investigator himself administered the tests to the entire sample with the necessary assistance of the concerned schools.
To collect the data the test administration procedure divided into two different phases. At the initial phase, after receiving the proper permission from the Head of the institution the investigator entered to the different classes and the printed sociometric technique in Assamese language was distributed to each student present in the class. The students were asked to name their friends' name, hence they did. Before writing their friends' name they were instructed to give the relevant information such as name, class, age, roll no., father's occupation and father's educational level etc. by filling up the columns given with the answer sheet. Accordingly, the subjects wrote down their friends' name along with the necessary information in the space provided. Then after, the investigator collected the answer sheet and kept school-wise separately. From the collected answer sheets the investigator separately and clearly recorded the informations and likewise, sociogram was used to identify the 'stars' and 'isolates'. The maximum choice extended to the boys or girls were selected as 'stars' and no choice extended to the boys or girls identified as 'isolates'. Limitation of the choice for stars was arbitrarily fixed at more than nine choices.

As the identification of 'stars' and 'isolates' over, the investigator prepared a list of 'stars' and a list of 'isolates' clearly stating the name of the subject,
name of the school, age, class, father's occupation, father's educational level and sex etc. The first phase was conducted one after another schools.

To ensure the sample as 'stars' and 'isolates' the sociometric technique was administered twice in the same sample at the gap period of one year. The same subject found as 'stars' and 'isolates' in the both times accepted as actual sample.

In the second phase, the investigator again approached to the Head of the concerned school and requested him to allow to conduct the tests on the selected 'stars' and 'isolates'. Accordingly, the Head of the institutions according to his convenience allowed to conduct the test of verbal test of creative thinking and Rao's Achievement motivation test and extended his help and co-operation and managed a separate room in a calm and quite situation by providing necessary aide.

Much attention was paid to administer the test meant for the selected 'stars' and 'isolates'. The following points were carefully considered before administering the test.

1) The place for administering the test was chosen in such a way that children could do comfortably without any disturbances. To avoid copying, the respondents were provided sufficiently spaced classroom setting, care
was taken in all respects.

ii) The subjects were properly motivated to take the test. They were told that they would soon be involved in an interesting activity in which they would soon be required to give interesting and novel responses to certain situations provided in the answer sheet.

iii) All the instruction were explained in Assamese clearly and in detail until they were acquainted with. No other persons were allowed to listen or watch the students.

iv) The answer sheets were distributed separately just before every instructions was given. Simple language was used to explain the activity.

v) It was also checked before hand whether each child had with him pen or pencil. A stock of pencil, rubber and sharpener were kept handy with the investigator to meet emergency situations.

After ensuring that all the arrangement, were proper, then the respondents were given the general direction. First of all general instruction for verbal creative thinking test was given in Assamese in the following way.

i) Novelty, originality and creative ability play an important role in man's life. All inventions are the result of man's ability to think in novel ways. There are many things in this world which can be made more interesting and useful by the use of our imagination and creative
thinking people who possess this ability have been responsible for many new inventions and discoveries.

ii) On the following pages in this booklet you will find mentioned some interesting problems which, if tackled imaginatively and creatively, may result in interesting and novel responses. You will enjoy doing these problems.

iii) The activities given in the answer sheets relate to problems in our daily life. They do not have right or wrong answer. You have to think as many novel and interesting things about them as you can try to think of such things as no one else in your class may have thought of. In fact your novel and creative responses will enable us to know about your ability to think about things in a creative manner. Therefore, write as many novel and interesting ideas as you possibly can, even if they appear to you to be impossible.

iv) You have given four activities to do. For convenience sake each activity has been separately timed. Try to work as quickly as you can. If you finish an activity before the time for it is up do not go to the next activity until you are told to do so. Use your remaining time to think quietly about the different tasks of the activity and write whatever new ideas comes to your mind about any of the tasks in the activity. At the end, you will be given five minutes extra. If you get any new idea about
any of the problems which you could not mention at the
time you were working on them, please write it in the
extra time allowed to you.

v) Attempt every task of the four activities, when you are
asked to begin, immediately start your work if you have
to ask any question please do it now. If you have no
difficulty now, but find one later quickly raise your
hand from your seat so that your difficulty may be
removed.

After the general instructions have been given,
the test administrator read the instructions for the first
activity asking the subjects to go through with him silently.
The instructions and the example given in the test booklet
were given there in Assamese.

The subjects were told.

i) Below, you have been given three situations which will
appear to you as impossible. You have to think what
would happen, if such situation actually arise.

ii) Give as many ideas as may come to your mind, but try
to think as many novel ideas as you possibly can, and
try to answer as many as you can within 15 minutes
(4 minutes each). Try to answer in such a way that none
of your friends have ever thought of.

iii) Try to answer in small sentences so that you can write
the maximum in the given time.
iv) You have to answer all the three questions, within 12 minutes if you can not understand the first question, then try to attempt the second question. In the midst, or later, if you think of an answer, for the first question, then write it down. After every four minutes you will be told the time.

v) When you are asked to start, start immediately. Below is an example by which it will be clear as to what you should do.

To make the respondents understood the example was repeatedly used. The respondents were repeatedly inquired whether they were acquainted with or not. After being confirmed from each respondents they were instructed to put their answers in the space provided in the answer sheet. They were allowed to do for four minutes. At the end of four minutes they approached to the second and third respectively and at the end of the all three items they were given another extra three minutes to write the idea came to their minds relating to any three items. For all the tests the investigator kept the record of the time limit and reported to the subjects at the end of limited time. In all the subsequent tests like unusual uses test, new relationship test, product improvement test, the same procedure was followed by giving separate direction and example as given on the answer sheet.
While, the test on verbal creative thinking was over, than the achievement motivation test was administered. The test was distributed to each student. As the test was in the hand of the respondents, the investigator slowly and clearly read out each sentence. Prior to which the subjects were given the direction as follows:

This is an attempt to understand you and help you to do well, whatever you want to do in life.

Below are given twenty incomplete sentences with two possible alternatives, A and B which complete the sense. There is nothing like a right or wrong answer. Both the answer are correct but a tick mark against only one of the alternatives which you prefer.

This is nothing to do with your examination. Feel free to answer all the question frankly. There is no time limit, but work rapidly. The students of your age generally take 8-10 minutes.

The subjects were allowed to finish as many times as they needed. Thus after completing the answer sheets were collected carefully and serially kept.

To do scoring the direction for scoring the Rao's achievement motivation test was followed and used the scoring key for the test. Each item of the test is followed by two responses of which one is high achievement related
(HAR) and the other is general achievement related (GAR). The GAR responses get a score of one and the HAR responses get a score of three. The cumulative weighted score of all the responses as provided in the key forms the achievement motivation score of the individual.

At the time of scoring for verbal creative thinking, test manual and scoring key was followed strictly. As there is no right of wrong responses for the test much care had exercised at the time of scoring. The scorer acquainted himself fully with the method of scoring.

Each item scored for fluency flexibility and originality. The number of relevant and unreported responses counted for fluency by giving a score of one to each response and entered the number as fluency score for the item in the appropriate box in the answer sheet. In case of the flexibility a person's ability to produce ideas which differ in approach and thought trends was taken as flexibility. In scoring for flexibility the investigator followed the scoring guide and as such categorised the responses alphabetically and a score of one was given for each alphabet serial. Scoring for originality was done on the basis of statistical uncommonness of responses. The more uncommon the response the highest the originality weight of originality had been determined on the basis of the following scheme.
Responses given by 4% to 4.99% of the testees a score of one was given. Responses given by 3% to 3.99% of the subjects a score of two was given. A score of three was given if 2% to 2.99% of the subjects given the responses. The originality weight four was given if 1% to 1.99% of the subjects given the responses. A score of five was given if .1% to .99% given the responses.

For scoring originality, the key reported by Nehdi could not be followed appropriately because the respondent give the dissimilar responses as found in the key. Because it was difficult to do so in case of the originality due to unique creative thinking of the subjects.

Thus the investigator has used some freedom in scoring originality. The original responses found other than the given responses in the scoring key presented in the Appendix. iv

2.5 Method of Analysis

The analysis of variance technique (F Ratio) was made use to obtain the results. However, F Test reveals overall significant difference among the treatment levels but to find out which of the specific pairs of treatment levels show significance difference statistical analysis is needed. Hence, the investigator used Duncan's New Multiple
Range Test to compare each treatment mean (K) with every other treatment mean. The chi-square test ($X^2$) also used to find out the significant relationship between the sociometric status and Father's educational level, and occupational level.