CHAPTER IV

DESIGN

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METHODOLOGY
DESIGN AND METHODOLOGY

DESIGN

The present investigation was designed to study the effects of Anxiety (Trait) and Need Achievement Motivation on the academic performance of the subjects (Ss).

A 2x2 (AxB) factorial design was employed with the two independent variables, trait anxiety (A) and need-achievement motivation (B), varied at two levels low and high. The dependent variable used was the academic performance of the Ss. The main effects as well as the interactional effects of anxiety (trait), and need achievement motivation on the academic performance were studied. The research design used was as follows:

<table>
<thead>
<tr>
<th>Anxiety (A)</th>
<th>Low (A1)</th>
<th>High (A2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation (B)</td>
<td>Low (B1)</td>
<td>A1B1</td>
</tr>
<tr>
<td></td>
<td>High (B2)</td>
<td>A1B2</td>
</tr>
</tbody>
</table>
In addition to the analysis of variance (ANOVA) of the factorial design, a multiple regression equation was formed. The equation was:

$$X'_1 = A + B_{12.3} \times X_2 + B_{13.2} \times X_3$$

Where,

- $X'_1$ = The predicted value of the dependent variable (i.e. Academic performance in Percentage)
- $X_2$ = trait anxiety score
- $X_3$ = need achievement motivation score
- $A$ = a constant (Calculated from the data)
- $B_{12.3}$ = a multiplying constant for the $X_2$ values when effect of $X_3$ have been nullified or held constant
- $B_{13.2}$ = a multiplying constant for the $X_3$ values when effects of $X_2$ have been nullified or held constant

The multiple regression equation was helpful in assessing the contribution of each independent variable towards any noticeable change in the dependent variable.

Achievement scores in final exams of the previous year were collected from various college records, which served as dependent variable in the analysis of variance and in the multiple regression equation.
SAMPLE:

(A) Preliminary Sample

The sample of the present study consisted of 381 students studying in B.A/B.Sc.II and III year. These colleges were fairly representative of the urban colleges of Haryana. The students studying in these colleges came from different socio-economic status groups. There were 182 girls and 199 boys in the preliminary sample.

(B) Final Sample:

From the preliminary sample, a final sample of 80 students was taken which represented extreme scores on the independent variables. Initially, the Ss were drawn on the basis of the first independent variable, i.e: anxiety. Then, they were further sub-grouped for the second independent variable, i.e: need achievement motivation. Finally, the 2x2 factorial design comprised of four cells each with equal number of Ss.

<table>
<thead>
<tr>
<th>Sampling Design</th>
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<tbody>
<tr>
<td>$A_1$</td>
</tr>
<tr>
<td>$B_1$</td>
</tr>
<tr>
<td>$A_2$</td>
</tr>
<tr>
<td>$B_1$</td>
</tr>
</tbody>
</table>
**TOOLS USED: A. Self evaluation Questionnaire of Trait Anxiety:**

To determine the level of anxiety of the Ss, a self evaluation questionnaire (STAI Form Y-2) constructed and standardized by Spielberger (1980) was used (Appendix I-A). It consists of twenty statements that assessed as to how people generally feel. Examinees were instructed to indicate how they generally felt by rating the frequency of their feelings of anxiety on the four point scale: (1) Almost never (2) Sometimes (3) often (4) Almost always. Each item was given a weighted score of 1 to 4. A rating of 4 indicated the presence of high level anxiety for eleven items (e.g. I feel frightened, I feel upset). A high rating indicated the absence of anxiety for the remaining nine items (e.g. I feel calm, I feel relaxed). The scoring weights for the anxiety present items were the same as the blankened numbers on the test form. The scoring weights for the anxiety absent items were reversed i.e. responses marked 1, 2, 3 and 4 were scored 4, 3, 2, and 1 respectively.

This scale has been widely used in assessing clinical anxiety in medical, surgical, psychosomatic and
psychiatric patients. Psychoneurotic and depressed patients generally have high scores on this scale. It is used for screening high school and college students for anxiety problems. It has a reliability and validity score of .90 and .89 respectively.

B) Deo-Mohan Achievement Motivation Scale:

This test was administered to assess the level of need achievement motivation of the Ss. The test comprised of fifty statements and the examinees were instructed to indicate their feelings by rating the frequency of the statement on a five point scale: (1) Always, (2) Frequently, (3) Sometimes, (4) Rarely, and (5) Never. The statements consisted of both, positive and negative, items. A positive item carried the weights of 4, 3, 2, 1 and 0 respectively where as the negative items were scored in the reverse order. The total score was the summation of all the positive and negative item scores. In all, the fifty statements comprised of the following fifteen factors of achievement motivation: (1) Academic motivation, (2) Need for achievement, (3) Academic challenge, (4) Achievement anxiety, (5) Importance of grade/marks, (6) Meaningfulness of task,

It has been widely in use as it is quick to administer and easy to score.

C) Academic Performance:

Academic performance data consisted of the total percentage of marks obtained in their previous year annual examinations. They were obtained from the record registers of the colleges concerned. Teacher bias was effectively controlled by considering the annual exams percentage. The result of such examinations have been found to be amply reliable (Sharma, 1970). Besides controlling teacher bias, biases in marks due to difference in subjects under study, like arts and sciences, was also controlled by giving representation to the students of both the streams.

PROCEDURE:

Both the tests were administered in a single sitting in the following order of presentation:
1. Self evaluation questionnaire of trait anxiety.
2. Deo-Mohan achievement motivation scale.

First, the test questionnaire of trait anxiety, was handed over to the Ss with the following instructions:

"Some general statements are given in this form. Read each statement and then write your response in the bracket provided on the extreme right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any statement, just answer as honestly as possible. Your responses will be kept confidential. Do not leave any statement unanswered."

After all the relevant information and instructions, the Ss were asked to proceed with the test.

After all the Ss had completed their anxiety questionnaire, they were handed over the questionnaire of Deo-Mohan Achievement Motivation Scale. The instructions for this test were very much similar to the previous one. They were instructed as follows:

"In this question booklet, you are provided with fifty statements about which you are to express your
subjective feelings by rating them on the five point scale provided on this separate score sheet. There is no time limit, but try to do them as early as possible and upto your maximum satisfaction of truth."

After both the tests had been administered, they were scored separately in accordance with their respective scoring rules. The mean and SD of both the tests were separately calculated and the various factorial grouping were formed on its basis. The Ss were first divided into two extreme groups of HA and LA lying above and below mean ± ISD units. The HA and LA groups were further sub-divided on basis of high motivation and low motivation on the similar criterion of lying above and below mean ± ISD. This data were subjected to analysis of variance (ANOVA) which formed the basis of the results and discussion.

The data were also subjected to formation of a multiple regression equation which helped in arriving at conclusion regarding the contribution of each independent variable in influencing the dependent variable.