Chapter - 3

RESEARCH DESIGN OF THE STUDY

Technique is research what method is to teaching or in a sense, what logic is to thinking
— R. Rush
Chapter-III

**Research Design of the Study**

The study in hand is a survey type research where the data was collected through the psychological questionnaire the data for the anxiety as one of the psychological factor shall be collected through. Sinha’s anxiety test the Neuroticism and Extraversion as the factors of the personality were measured through the data collection by mean of Maudsley Personality Inventory (MPI) and the data for Adjustment factor was measured through Bell adjustment inventory.

As per the objectives of the study the investigator had to plan the entire process of research work in terms of research design suited to present study; and to accomplish the purpose of the study, the design has been systematically presented and explained in this chapter, which is given as follows.

(i) Sample

(ii) Variables

(iii) Tools used

(iv) Collection of data

(v) Statistical Techniques to be used
(i) Sample:

A sample is a miniature picture of the entire group of aggregate from which it has been taken. A sample, in other words, is a small representation of a large whole, Mouly (1964) gives the following advantages of sampling:

“A layman can think that taking the sample from the total population may not get valid results but in actual fact sampling does provide the basis for reliable and valid inferences provided the sampling is proper and adequate, that is, not only sufficiently representative but also of sufficiently large size in order to ensure stability of the generalization made as result of the study”.

In the present study, the investigator used stratified random sampling technique for selecting various groups of samples.

A total sample of 450 students was taken for the study. For the collection of the data 225 sportsmen (75 for Basket ball, 75 Hockey and 75 Volley Ball games) were selected from four district of Haryana state where the Haryana state government run training centre for these games. These players were of the age group 18-22 years and had participated at least in one of the inter-colleges or inter district tournament. Only male sportsmen were subject for the present study. For the purpose of
comparison 225 male non-sportsmen in age group 18-22 years were selected randomly from the various districts of Haryana State.

(ii) **Variables:**

Keeping in view the educational importance and performance in sports, following variables were selected for this study:

1. Anxiety
2. Neuroticism
3. Extraversion
4. Adjustment
   (a) Home Adjustment
   (b) Health adjustment
   (c) Social adjustment
   (d) Emotional adjustment
5. Performance
   (a) Sportsman
   (b) Non-sportsman

(iii) **Tools used**

"The selection of suitable instrument or tool is of vital importance for successful research. Different tools are suitable for collecting data for various purposes. For any research one or more of the tools in combination can be used" Sukhia (1977):
The selection of tools was governed by the consideration of their (i) availability (ii) suitability to the sample (iii) reliability and validity. Keeping in view these considerations, following tests were used for data collection.

A. Sinha's anxiety scale questionnaire by Dr. Durga Nand Sinha (Hindi Version, 1965) was used for measuring anxiety (Appendix A).

Likewise for the assessment of anxiety of the students, Sinha's Anxiety Scale was used. Dr. Durga Nand Sinha, Prof. and Head of the Department of Psychology, University of Allahabad. Anxiety scale was selected to measure - the anxiety among the students constituting the sample in performance to other tests for the following reasons:

This is a group test and hence it is easily administered. This questionnaire is easy in analysis and interpretation of data. It is also a standardized test. The split half reliability has been reported as .092 and the test retest is .85. The validity is also high. The test is available in Hindi version. Scoring of the test is easy. This test is specially designed for Indian population.
B. Maudsley personality Inventory (MPI) by S.S. Jalota and S.D. Kapoor Hindi version was used for measuring Neuroticism and Extraversion -Appendix B, (1950).

There are number of standardized personality inventories available for measuring different personality traits. To measure extroversion and neuroticism and, the Hindi version of Eysenck's Maudsley, Personality Inventory (MPI), prepared and standardized by S.S. Jalota and S.D. Kapoor, was taken. The reliability for the extroversion and neuroticism is 0.71 and 0.42 respectively. There are 48 test items in MPI. These items are yes/no items.

C. Bell adjustment Inventory by S.M. Mohsin Hindi Version was used to measure home, health, social and emotional adjustment - Appendix C (1934).

It is one of the most widely used personality inventories developed by H.M. Bell in 1934. It is adopted in Hindi by Mohsin-Shamshad. It has 124 items and measures adjustment in four areas home, health, social and emotional-separately and provides a reliable score of overall adjustment. The reliability of the inventory is 0.932 and validity is 0.785.
(iv) **Collection of Data:**

"Scientific problems can be resolved only on the basis of data, available or collected and a major responsibility of the scientist is to set up a research design capable of providing the necessary data for the solution of his problem" (Mouly 1964). Factual material or data unknown or untapped so far is essential in every study. It can be obtained from many sources, direct or indirect. It is necessary to adopt or evolve a systematic procedure to collect essential facts.

**Distribution of Total Sample:**

![Diagram of Total Sample Distribution]

Fig. 3.1 Split of Total Sample
In order to collect the requisite data for any research problem in social sciences the investigator has to select a sample of the population concerned since it is not possible to sample the entire population and to decide appropriate tools to measure the attributes concerned and finally to administer tools on the sample selected. The major task before the investigator in the present study was to administer the tools on the subjects in as homely a manner as possible with a view to get objective and true responses, therefore investigator first established personal contacts with sportsmen and Non-sportsmen and achieved a certain degree of rapport with them.

**Administration of Tests:**

After selecting the sample of the study and before conducting the tests, the purpose of testing and technique to be employed in the study were told to the subjects and all possible doubts were cleared. They were assured that the information obtained through the scales would be kept confidential. It would not harm them in any case. Therefore, they were urged to feel free and reply every question frankly and sincerely. The subjects showed enthusiasm and promise to give wholehearted cooperation. In this study questionnaire method was used. Every questionnaire was administered to all subjects under the direct
supervision of the investigator. The questionnaires were administered in accordance with the instructions laid down in the manual. While administering the questionnaires, the subjects were assembled at their places of competition. All tests were administered one after the other separately with the help of leader, coaches and managers of the respective teams.

**Scoring:**

The investigator studied all the instructions from the manuals of the tests to understand the scoring technique. In case of scoring of anxiety scale each statement has two alternative answers. Those who gave positive responses got one mark. Those who gave negative response got no marks. Thus, the maximum score on the scale is 100.

In Maudsley personality inventory, there are 48 statements, out of which 24 items measure extraversion and 24 neuroticism. If a “Yes” or a “No” response has been correctly encircled then two marks were awarded for each correct response. If a “?” has been correctly encircled, then one mark was given.

Mohsin has prepared Bell Adjustment Inventory in Hindi version and it has 124 items to measure four dimensions of adjustment viz., Home (32), Health (28), Social (31) and emotional (33). The respondents
were given all the instructions as laid down in the test manual to fill up their responses. The inventory is scored simply by counting the number of responses marked correctly in each area of adjustment. Each response has to be given a score of one. High score indicates poor adjustment. The sum of scores in different areas give measure of total adjustment.

(iv) **Statistical Techniques to be Used:**

After collecting the raw data, the data were tabulated and converted into standard scores for sportsmen and non-sportsmen, separately. Then mean score and standard deviation for different variables were calculated separately for sportsmen and non-sportsmen. The mean scores and standard deviation for sportsmen and non-sportsmen for each variable were used to see the significant difference between the two types of subjects sportsmen and non-sportsmen. 't'-ratio test was applied to see the significant difference between each parameter for sportsmen and non-sportsmen. Wherever the t-ratio values were found significant, mean values of sportsmen and non-sportsmen were consulted to see the magnitude of differences between the sportsmen and non-sportsmen on each parameter. The findings of the study were interpreted, critically analysed and supported by the previous researches and investigation. The
results of the study are listed at the end and suggestions for the further researches are given after the findings of study.

**MEAN:**

By definition the arithmetic mean is the sum of the set of measurements divided by the number of measurements in the set. It is the value that reflect the whole set of data or in other words it is the value representative of the whole service especially the centre around which the whole set revolves. It is used for the purpose of representation and also to determine the significance of difference existing between two sets of data. It is calculated by the formula:

\[
M = \frac{E_x}{N}
\]

Where \(E_x\) = Stand for sum total of the scores.

\(M\) = Mean of the series and

\(N\) = is the number of observation accounted for.

**THE STANDARD DEVIATION**

As a measure of variability, it is of maximum use in behavioural sciences. It is the statistical analysis that determines the spread of the scores over the series. It is the spread that determines the relatively of the
data while put to a frequency distribution. For the purpose of comparison to two sets of different data that the use of standard deviation is of bare necessity. In statistical terms it is called the root-mean-acquires deviation. It is computed by the formula:

\[ \sigma^2 = \sqrt{\frac{\sum Ex^2}{N} - \frac{(\sum Ex)^2}{N}} \]

Where  \( \sigma \) = Standard deviation or spread of scores.

\( Ex \) = the sum of the scores

\( Ex^2 \) = the square of the scores taken together

\( N \) = No. of observation accounted for.

**THE 't' TEST**

The Fisherian concept of ‘t’ is a statistical technique used to determine the significance of difference existing between two group means. It is of pivotal necessity on the part of the researcher to use this technique so as to determine the significance of difference existing between the groups for which the whole study is undertaken. So to overcome the factors like the researcher would like to use the Independent ‘t’ test. The independent ‘t’ test is calculated from the formula:
\[ t' = \frac{|\bar{X}_1 - \bar{X}_2|}{\sqrt{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}} \sim t_{n_1 + n_2 - 2} \]

Where

\( \bar{X}_1 \) = Mean of elements of 1st Group.

\( \bar{X}_2 \) = Mean of elements of 2nd Group.

\( S_1 \) = Sampling Variance of units of 1st Group.

\( S_2 \) = Sampling Variance of units of 2nd Group.

\( N_1 \) = Total number of elements of 1st Group.

\( N_2 \) = Total number of elements of 2nd Group.

\( S^2 \) = Combined variance of 1st and 2nd Group.