Chapter 3

Methodology
The aim of the present endeavor was to study ‘anxiety and academic performance as a function of self-concept and perceived school environment’ of class 10th school goers where anxiety and academic performance were taken as criterion variables, and self concept and school environment as predictor variables. Since, it was an empirical research investigation hence, certain procedures have to be adopted. It is imperative to mention at this juncture that researches in all discipline, whether it is science, social science, arts or commerce, every discipline require sound methodology for objective and systematic investigation. Therefore, all research efforts require certain procedures to be followed. Methodology is a sum total of the various procedures or steps adopted in carrying out researches in order to find out the real dynamics operating in relational and cause-effect relationship.

In the light of above contentions and the nature of the study, the following steps were taken for fulfilling and meeting the objectives through empirical investigation.

Sample

Sample is a small portion of a specific population or universe as representative of that particular population. It is difficult and rather impossible in any behavioural researches to cover the whole population so a portion which represents the whole population is selected by using appropriate sampling technique in accordance with the nature of the research problem. Hence, random sampling technique was used to draw research sample from the population comprising of different sections of Class-X.

In the present proposed study the sample comprised of N=492 students of Class-X who were taken from Private and University-run schools. Reason for selecting 10th standard students as a sample was that these students are generally at
peak adolescent age when focus on the self is at its developmental height. Thus, the sample of present study was comprised of high school students whose age ranged from 15 to 17 years, hence, sample population in terms of age is highly homogenous. The following figure shows the clear break-up of the sample.

**Figure- 3.1**

Represents Break-up of the Sample

For further details pertaining sample break-up along-with sample characteristics are highlighted in Table- 3.1
Table– 3.1: Showing break-up of the sample and details of their biographies

<table>
<thead>
<tr>
<th>Schools</th>
<th>Groups</th>
<th>Total (N)</th>
<th>Age</th>
<th>No. of Family Members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Range</td>
<td>Mean</td>
</tr>
<tr>
<td>University-run Schools</td>
<td>University-run school boys (non co-ed)</td>
<td>138</td>
<td>15-17</td>
<td>16.30</td>
</tr>
<tr>
<td></td>
<td>University-run school girls (non co-ed)</td>
<td>134</td>
<td>14-17</td>
<td>15.21</td>
</tr>
<tr>
<td>Private Schools</td>
<td>Private school boys (non co-ed)</td>
<td>56</td>
<td>15-17</td>
<td>15.57</td>
</tr>
<tr>
<td></td>
<td>Private school girls (non co-ed)</td>
<td>50</td>
<td>15-16</td>
<td>15.43</td>
</tr>
<tr>
<td></td>
<td>Private school boys (co-ed)</td>
<td>62</td>
<td>15-16</td>
<td>15.77</td>
</tr>
<tr>
<td></td>
<td>Private school girls (co-ed)</td>
<td>52</td>
<td>15-16</td>
<td>15.23</td>
</tr>
<tr>
<td>Total (N=492)</td>
<td></td>
<td>492</td>
<td>15-17</td>
<td>15.4</td>
</tr>
</tbody>
</table>

Description of Tools

In behavioural sciences measurement is considered to be a complex task but such challenges have to be taken up by psychologists to understand the dynamics of human behavior. Therefore, in case of present investigation, following tools were used for tapping informations regarding each variable in question.

Anxiety Scale

In order to measure the level of students’ anxiety, shorter Hindi version of Sinha’s self analysis scale developed by Khan and Hasan (1981) was used. Sinha’s (1968) self analysis form originally consisted of 100 items whereas, shorter version comprised of 30 items having a correlation of .79 with the full scale depicting and
ascertaining the validity of the scale. Each item with forced choice alternative of 'Yes' or 'No' was devised to find out the extent of anxiety in its various areas—general worries, somatic manifestations, psychological symptoms, social relation, other two areas related with individuals' health and appearance, and guilt and shame. Those items which were checked 'Yes' awarded the score of one. The total score of anxiety is the total number of items checked positively. Higher scores on scale show high level of anxiety. Its split half reliability was $r=.72$ while, the validity of shorter version was also determined by Khan and Hasan by correlating its scores with the scores of Maslow's security-insecurity inventory and Cattell’s scale of Ergic Tension included in his 16 PF Questionnaire was $r=.535$ and $r=.531$ respectively.

**Academic Achievement Measure**

The performance of the children at school was measured on the basis of the academic achievement obtained in the examinations consisting of first, second and third terminal examinations. In order to obtain the higher reliability of academic performance, the performances of each and every student of the last three consecutive classes viz., Class-VIII to Class-X were taken in consideration and the average scores of the three consecutive classes were taken as the indicator of real academic performance. This was done because of the reason that the performance of any child may get affected because of personal illness, family problems, etc, so the average academic performance of three consecutive years was supposed to neutralize any of the reasons affecting the real performance of school goers.

**Children’s Self Concept Scale**

In order to assess self-concept of school children, a scale developed by Ahluwalia (1986) was used. This scale was developed in the line of well known Piers-
Harris’ Children’s Self-concept scale (1969). This questionnaire consisted of 80 items with ‘Yes’ or ‘No’ responses. In the scale there were 14 lie items to detect whether the children and/or adolescents have filled it accurately or not. The scale items are scored in a positive or negative direction to reflect the evaluation dimension. The sum of scores for each sub-scale of the self-concept scale could be obtained by adding the scores. The total self-concept scores were obtained by adding scores of all the six areas. A high score on scale is presumed to indicate a favorable or realistic self-concept. The reliability coefficient of the scale was calculated as $r=0.88$ by the test-retest method and the split half reliability was found to be $r=0.79$. This scale has high order face and content validity. In order to ascertain concurrent validity of the scale, the scores from each sub-scale were inter-correlated and their inter-correlations ranged from $r=0.397$ to $r=0.621$, which were statistically found significant beyond .01 level of confidence.

This scale measures not only respondents overall self-concept, but also assesses six important domain areas, which are considered to be important in the psychological world of childhood and adolescents. The domain scales are:

1. **Behaviour (behavioural adjustment)**: contains 16-items that measures individuals’ acceptance or denial of problematic behaviours.

2. **Intellectual and School Status**: 18-item sub-scale that measures the child’s evaluation of his or her own abilities in terms of intellectual and academic tasks. It also measures child’s appraisal about their position in school.

3. **Physical Appearance and Attributes**: 12-item sub-scale that measures a child’s assessment of his or her own physical appearance as well as their appraisals of certain personality attributes such as ability to express one’s ideas and leadership abilities.
4. **Anxiety (freedom from anxiety):** 12-item sub-scale that measures anxiety and dysphoric mood and feeling of nervousness.

5. **Popularity:** 12-item sub-scale that captures the child’s evaluation of his or her own social functioning and popularity, and

6. **Happiness and Satisfaction:** 10-item sub-scale that measures a child’s feelings of happiness and satisfaction with life.

**School Environment Scale**

School environment scale was developed by Fatima and Ansari (2002). It consists of 30-items and responses were measured on Likert type 5-point scale viz., strongly agree ‘5’, agree ‘4’, undecided ‘3’, disagree ‘2’, strongly disagree ‘1’. A total score is produced by adding together each of the scores and a higher score indicates better and favorable school environment. The reliability of the scale was ascertained by Cronbach’s alpha value that was as high as $r = 0.781$ that confirmed the scale reliability. This scale also contains high face validity and content validity.

Review of literature and previous measures on school and organizational climate suggest that school environment is a multidimensional approach, it cannot be measured through a single factor but it contains various dimensions. Hence, the scale contains eight dimensions. The descriptions of these dimensions are as follows:

1. **Attitude towards teacher:** It refers to students’ attitude towards their teacher or how they perceive their teacher and teachers of the school at large.

2. **Attitude towards administration:** It refers to students’ reaction towards teachers’ behaviour and school administration as well.

3. **Teacher caring attitude for students:** It is students’ perception with regard to their teachers that how they interact with them.
4. **Attitude towards classmates**: This refers to classmates’ relation and reactions with each other.

5. **Extra-curricular activities**: The extra-curricular activities dimension evaluates perceptions of students about opportunities they find to participate in extra-curricular activities within school.

6. **Teacher-taught relationship**: It refers to teacher-taught intervention based on teachers’ deep knowledge of the subject of teaching and mastery over communication skills. These evoke interest and curiosity in the mind of the students for knowing the subject matter, which further lead students’ performance in a positive direction. It also shows teacher-student relationship.

7. **Home-work**: It refers to tasks given to students as a means of exercise for developing learning efficiency.

8. **Students’ attitude towards school**: It is also one of the very significant dimensions that refer to the student’s attitude towards school facilities and school reputation.

**Biographical Information Blank**

Apart from the psychological tools, a Biographical Information Blank (BIB) was also prepared to record various demographic informations of the respondents such as age, sex, fathers’ and mothers’ qualifications, fathers’ and mothers’ professions, number of brothers/sisters, number of total family members, the type of school, etc., which usually help while interpreting the results.

**Statistical Analyses**

Once the data were collected from respondents, it requires applying certain kind of statistical treatment to reduce long wide-ranging scores into
intelligible and interpreted form, in order to understand the results very easily and conveniently. In view of the nature of research investigation and the hypotheses of the study, 'Multiple Regression Analysis' was found best suited for analyzing the data and obtaining appropriate results. Multiple Regression Analysis studies the influences of several predictor variables simultaneously on the criterion variables. The function of the Multiple Regression Analysis is to make predictions about criterion variables on the basis of various predictor variables. Since, there are many methods of Multiple Regression Analysis as enter, forward, backward, stepwise and remove, hence, in the present study Multiple Regression Analysis by adopting Stepwise method was found very appropriate in analyzing the data. One advantage of the stepwise method is that it produces a most parsimonious model and ensures that you end up with a small set of predictor variables which significantly predict the criterion variable. And for group comparisons, 'One-Way Analysis of Variance' (ANOVA) was applied to see the significance of differences among various sub-sample groups on merely, criterion variables. The later endeavor was though beyond our purpose and purview but seems to elicit very important informations. Analyses were done using 16.0 version SPSS (Statistical Package of Social Sciences), which yielded results in different steps.