Chapter-III

METHOD
3.1 PARTICIPANTS

The present research was carried out in Lucknow, the capital city of the state of Uttar Pradesh (U.P.) in North India. The study was conducted in two phases. The first phase involved measures of stress, self-esteem and the three psychological needs of Self-Determination Theory. A semi-structured interview for an in-depth qualitative analysis was also undertaken in the second phase where eight cases drawn from the first part of the study were interviewed.

The samples for the first part of the study were drawn from amongst the students from both government schools which were run by the state and privately-run schools with no financial assistance from government. The sample was drawn from among the schools selected for this study based on availability of permission to conduct the study and collect data. The samples of boys and girls were drawn from Grades IX to XII. The total sample size was 240, comprising of 30 subjects (15 boys and 15 girls) each from grades IX to XII. The students were taken from the two school types (private and government schools), who volunteered to participate in the study. The average age of the population was 15.75 years. The average age for female students was 15.81 years, which was slightly higher than the male average age of 15.69 years. The average age for secondary and higher secondary students were 14.75 years and 16.69 years respectively. There were clear Socio-Economic Status (SES) differences in the two school types. The government schools with their low subsidized fees catered to the lower and poor class while the
private schools with higher fee structures and higher cost of education generally had students from the upper economic strata.

Thus, the two school types had demographically different characteristics of samples with the private school students coming from relatively privileged economic background as compared to their government school counterparts. Government school students most of the times were first, at best second generation learners with little or no moral support for education in contrast to private school students. The government schools had Hindi as their medium of instruction and English was taught as a second language in which the students were not very proficient. On the contrary, the private schools had English as the medium of instruction. The government school-girls had daily family responsibilities like cooking and home-care, which were nearly absent or infrequent in the case of private school girls.

The second part of the study drew eight cases from the earlier sample of 240. The eight cases were selected by arranging the entire sample in descending order of their scores on stress. The ten cases with highest and ten cases with lowest stress levels were selected. The selected twenty cases were approached and finally eight cases that gave their consent were interviewed. A semi-structured interview was designed with the help of experts to understand the dynamics of SDT (by probing into the three needs of the theory namely, autonomy, competence and relatedness). The interviews were analyzed with the help of the content analysis technique to substantiate for the quantitative findings and also to give us an insight into the dynamics of stress and the influence of SDT factors on it.
Chapter 3: Method

3.2 TOOLS

1. Stress Scale, a Self-Report Symptom Inventory, developed with Hopkins Symptoms Checklist (HSCL) as its base.


3.2.1 DESCRIPTION OF THE TOOLS:

1. Stress Scale:

   The stress scale used was based on the Hopkins Symptoms Checklist (HSCL) known as Self-Report Symptom Inventory developed for individuals to give an understanding of possible psychological symptoms being experienced under stress. The Hopkins Symptoms Checklist (HSCL) is a well-known and widely used screening instrument the history of which dates back to 1950s. It is a product of the programmed factor analysis that resulted in an inventory with 90 questions. (Derogatis & Cleary, 1977; Parloff, Kelman & Frank, 1954 at Johns Hopkins University). It was originally designed by Parloff, Kelman and Frank at Johns Hopkins and has been successively factor analysed and is therefore one of the best known and widely used instruments in the field of stress analysis. The statements in HSCL describe 45 different reactions towards Stress ranging on five dimensions, as given on the next page.
Chapter 3: Method

(1.) Somatization (12 items) reflected from perception of bodily dysfunctions such as headaches, pain, soreness, and discomfort.

(2.) Obsessive Compulsive (8 items) reflected irresistible thoughts, impulses and action not connected to ego drives such as forgetfulness, worry about carelessness, indecisiveness, and difficulty in concentrating.

(3.) Interpersonal Sensitivity (7 items) reflected feelings of personal inadequacy and inferiority as compared to others such as being annoyed, critical of others, hot-tempered and socially insecure.

(4.) Depression (11 items) reflected in feelings of being low in spirit and dejected.

(5.) Anxiety (7 items) reflected apprehension, distress, and uneasiness manifested in shakiness, trembling and being afraid.

Thus, the stress scale used was a self-rating inventory with a 4-point rating scale namely,

(1.) Not at all true of me,

(2.) A little bit true of me,

(3.) Quite a bit true of me, and

(4.) Extremely true of me.

The used scale had 30 items that were drawn from the HSCL measuring 11 reactions to stress rather than the original 45, ranging on five instead of the 45 different reactions towards stress in the original scale HSCL. These 30 items were arrived at after factor analysis

**Scoring:**

The used scale had 11 different reactions towards stress that were drawn from the Hopkins Symptoms Checklist (HSCL). The smaller version of the checklist was used.
Chapter 3: Method

(1.) Despair (6, 28, 29)
(2.) Interpersonal Reaction (5, 8, 15, 18)
(3.) Somatization (4, 9, 16, 20, 30)
(4.) Mental Weakness (2, 11, 21, 24)
(5.) Anxiety (1, 14, 25, 26)
(6.) Lack of energy (7, 10, 12)
(7.) Depression (13)
(8.) Throat problem (23, 27)
(9.) Apprehension (17)
(10.) Dizziness (3, 19) and
(11.) Muscular Problem (22).

Minimum score on the scale is 30 and maximum score is 120

Table 1: Symptom-wise items in the Stress Scale based on HSCL

<table>
<thead>
<tr>
<th>Psychological Symptom</th>
<th>Item No. reflecting the Symptom</th>
<th>Range of Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Despair</td>
<td>6, 28, 29</td>
<td>1-12</td>
</tr>
<tr>
<td>Interpersonal reaction</td>
<td>5, 8, 15, 18</td>
<td>1-16</td>
</tr>
<tr>
<td>Somatization</td>
<td>4, 9, 16, 20, 30</td>
<td>1-20</td>
</tr>
<tr>
<td>Mental Weakness</td>
<td>2, 11, 21, 24</td>
<td>1-16</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1, 14, 25, 26</td>
<td>1-16</td>
</tr>
<tr>
<td>Lack of energy</td>
<td>7, 10, 12</td>
<td>1-12</td>
</tr>
<tr>
<td>Depression</td>
<td>13</td>
<td>1-4</td>
</tr>
<tr>
<td>Throat problem</td>
<td>23, 27</td>
<td>1-8</td>
</tr>
<tr>
<td>Apprehension</td>
<td>17</td>
<td>4-1</td>
</tr>
<tr>
<td>Dizziness</td>
<td>3, 19</td>
<td>1-8</td>
</tr>
<tr>
<td>Muscular problem</td>
<td>22</td>
<td>1-4</td>
</tr>
</tbody>
</table>
Chapter 3: Method

The measure consisted of statements for which the respondent had to indicate the degree to which they considered the statement to be true or not very true of them. The responses were noted in a four-point scale ranging from 4 (extremely true) to 1 (not at all true). The total scores on each Item were added to get a final score on Stress levels and the Sub-scale items could be added separately to give sub-scale scores for all the 11 psychological reactions that could further be used for a richer interpretation of the stress of the students.

3.2.2 COOPERSMITHS SELF-ESTEEM INVENTORY (CSEI)

The Self-Esteem Inventory provides ratings of the parents, peers etc. who have an overwhelming and significant effect on self-esteem as is often assumed" (Pervin, 1993, P.189). Parental attitudes and behaviors - acceptance of their children, clear and well-enforced demands, and respect for actions within well-defined limits - were the primary antecedents of children's sense of self-worth (Pervin, 1993). The inventory is based on Coopersmith's work on the self-esteem of children in the year 1967. Currently, the Scale has three forms, the first being School form then, School Short form and finally Adult Form. The school forms and the school short form have been used in the present study.

The school form of the self-esteem inventory was used with children and adolescents aged eight through fifteen years. This School form had 50 items of which eight items were part of an inbuilt Lie Scale. The Adult form had 25 items and was used for students aged 15 and above. The fifty item scale (School Form) had items related to self attitude in four areas- peers, parents, school and personal interest, called General Self, Social Self-Peer, Home-Parents and School Academic. As the shorter version of the scale (School Short form) used for XI and XII grade students did not had these subscales
Chapter 3: Method

and the present study did not require these scores for the study variables therefore these subscales were not utilized in the study. During administration, introductory or explanatory remarks were kept to a minimum. The words ‘Self-Esteem’ and ‘Self-Concept’ and ‘Self-Evaluation’ were not used so as to prevent biased responses, which may invalidate the test.

Once the Inventory had been distributed, the examinees had to complete the identified information (name, age, etc.). If the examinees had difficulty entering the information or if the time was limited, it became necessary for the person administering the inventory to complete this task beforehand. The directions were read aloud and the students were allowed to follow along with their inventory booklets. Then, they were allowed to complete the practice items.

Once it was certain that all the students understood the task they were instructed to open their booklets and begin. However, for group or individuals who might have difficulty reading the items it was appropriate for the administrator to read them aloud.

Once the inventory had been completed it was insured that the identified information had been completed.

Scoring:

The Inventory is scored through the use of the scoring key that had been provided. In case, the scoring key was not available, the general rules listed below were followed while scoring the self-esteem items.

Score negative items correct (e.g. ‘I get upset easily at home’) if they have been answered as ‘unlike me’.

Score positive items correct (e.g. ‘I’m pretty sure of myself’) if they have been answered ‘Like Me’.
Chapter 3: Method

The school form included eight items that constitute the Lie Scale. The Lie Scale Items (26, 32, 36, 41, 50, 53, 58) were always scored separately (not included in the self-score). To score the lie scale one point was awarded for each Lie Scale Item (in capital-is it ok) answered 'Like Me'.

The four subscales of the school form were scored separately. To arrive at the total score, sum the number of self-esteem items which are answered correctly. For the School Form, the total raw score was multiplied by 2, so that this result in a maximum possible total score of 100.

Interpretation:

There are no exact criteria for high, medium and low level of self-esteem. They will vary with the characteristics of the sample, the distribution of the scores and theoretical and clinical consideration.

Usually, two procedures are recommended when the SEI is being used in the school settings: the supplemental use of a behavior observational rating and development of local norms.

For the SEI, high scores correspond to high self-esteem. In most studies, the distribution of SEI scores has been skewed in the direction of high self-esteem (negatively skewed). Employing positions in the group as an index of relative self-appraisal, the upper quartile generally can be considered indicative of high self-esteem, the lower quartile generally as indicative of low self-esteem and the interquartiles generally as indicative of medium self-esteem.
Chapter 3: Method

A high score on the Lie Scale may indicate that the respondent responded defensively or thought that he/she understood the ‘intention’ of the inventory. The subjects who scored high on the lie scale were not made part of the study sample.

3.2.3 LEARNING CLIMATE QUESTIONNAIRE (LCQ) TO MEASURE AUTONOMY

A central theme of SDT is the understanding that the quality of social contexts influences motivation, performance, and well-being of individuals who operate within them. The theory talks about autonomy support versus control to characterize the quality of social environments, hypothesizing those autonomy-supportive social contexts tend to facilitate self-determined motivation, healthy development, and optimal functioning. In much of the SDT field research, the focus is on the degree to which the social context is autonomy supportive for target individuals such as students, employees, patients or athletes. To assess the extent of autonomy in the classroom, Learning Climate Questionnaire was developed by Ryan and Connell (1989).

The learning climate Questionnaire (LCQ) is a scale measuring the perceived autonomy support of the subject taking the test. The scale is a measure of autonomy, which is one of the several variables of Self Determination Theory (SDT). These scales concern the degree to which the target individuals perceived people in positions of autonomy support, such as their teachers, managers, health care providers, or coaches to be autonomy supportive. The climate questionnaire yields a score on a 7-point scale, which shows how the respondents perceive their supervisors/teachers/manages etc. i.e. supportive or non-supportive of autonomy. Higher scores show higher perceived autonomy support.
Chapter 3: Method

Scoring:

Scores are calculated by averaging the individual item scores. However, before averaging the item score, the score of item 13 is to be 'reversed' (i.e. subtract the score of item 13 from Item 8 and use the result as the score for item 13, for example the score of 3 when reversed become 5). Higher average scores reflect a high-perceived autonomy support.

3.2.4 ACTIVITY-FEELINGS SCALE (AFS) AS A MEASURE OF INTRINSIC MOTIVATION

Brad Sickenius (1994) developed a brief, reliable, valid, and easy-to administer measure of each of the three psychological needs of relatedness, competence and autonomy. This scale has four in-built scales for SDT, Relatedness, Competence and Tension. Activity Feelings Scale is a complete measure of the Self Determination Theory. The scale when calculated also derived scores on the SDT variables of Competence and Relatedness that makes the data detailed and richer.

The present study used the scale in two parts, the first part giving the intrinsic motivation score of the students by adding up the sub scales of relatedness, competence and Self-determination. The scores on the subscale of tension were not utilized in the intrinsic motivation scoring as the study already has a scale on stress. The scale with these changes was called classroom activity feelings scale (CAFS). The tension scores however were later utilized in comparing with stress scores of the sample and in grouping the sample into clusters.
Chapter 3: Method

Scoring Key

* Self-Determination Score = Mean of (Free, I’m doing what I want, Free to decide for myself)

  Competence Score = Mean of (Capable, Competent, My skills are improving)

  Relatedness Score = Mean of (I belonged, I’m involved with friends, emotionally close)

  Tension Score = Mean of (Stressed, Pressured, Uptight)

* Sometimes “I participate willingly” is added as a 4th SD item. “Anxious” was not scored.

3.2.5 ACADEMIC SELF-REGULATION QUESTIONNAIRE (SRQ-A) FOR MEASURING SELF REGULATIONS

SDT differentiates different types of behavioral regulations in terms of the degree to which they represent autonomous or self-determined (versus controlled) functioning. Intrinsic motivation is the prototype of autonomous activity; when people are intrinsically motivated they are by definition self-determined. Extrinsic motivation, in contrast is more controlled (i.e. less autonomous). However, SDT differentiates in the types of extrinsic motivation in terms of the degree to which it has been internalized, suggesting that the more fully it has been internalized and integrated with one’s self, the more it will be the basis for autonomous behavior. There are four different types of behavioral regulations, defined in terms of the degree to which the regulation of an extrinsically motivated activity has been internalized and integrated. They are external regulation, introjected regulation, identified regulation, and integrated regulation, corresponding to the least to the most fully internalized regulation (Ryan and Deci, 2000). Introjected regulation refers to taking in a regulation but not accepting it as one’s
Chapter 3: Method

own; identified regulation refers to accepting the value of the activity as personally important and integrated regulation refers to integrating the identification with other aspects of one's self. External and introjected regulations are considered relatively controlled forms of extrinsic motivation, whereas identified and integrated regulations are considered relatively autonomous. Amotivational state is another important concept within SDT. This is a state without intention or motivation for a particular behavior. The format for these questionnaires was introduced by Ryan and Connell (1989). Each questionnaire asks why the respondent behaves in a way (or class of behaviors) and then provides several possible reasons that have been preselected to represent the different styles of regulation or motivation. The first two questionnaires were developed for late-elementary and middle school children, and concern school work (SRQ-Academic) and prosocial behavior (SRQ-Prosocial). Their validation is described in the Ryan and Connell (1989) work.

The Academic Self Regulation Questionnaire (SRQ-A) concerns the reasons as to why students do their school-work. As mentioned above, the scale has four subscales: External Regulation, Introjected Regulation, Identified Regulation, and Integrated Regulation.

**Scoring of the Scale:**

First, the subscale scores for each of the four subscales are calculated by averaging the items that make up that subscale. The responses on the 4-point scale were scored as follows:

- Very true is scored as 4,
- Sort of true was scored as 3,
- Not very true was scored as 2, and
Chapter 3: Method

Not at all true was scored as 1.

Listed below are the items that comprise the subscales:

External Regulation: 2, 6, 9, 14, 20, 24, 25, 28, and 32
Introjected Regulation: 1, 4, 10, 12, 17, 18, 26, 29, and 31
Identified Regulation: 5, 8, 11, 16, 21, 23, and 30
Intrinsic Motivation: 3, 7, 13, 15, 19, 22, and 27

Individual subscale score or Relative Autonomy Index (RAI) can be used in the analysis. To calculate the RAI for this scale, the following formula is used to combine the Subscale Scores.

$$RAI = (2 \times \text{Intrinsic Motivation Score}) + (\text{Score on Identified Regulation}) - (\text{Score on Introjected Regulation}) - (2 \times \text{External Regulation Score})$$

Relative Autonomy Index:

Finally, it is worth noting that the subscale scores on the SRQ, regardless of the number of subscales in the particular scale, can be combined to form a Relative Autonomy Index (RAI). For example, the SRQ-Academic has four subscales: external, introjected, identified, and intrinsic. To form the RAI, the external subscale is weighted -2, the introjected subscale is weighted -1, the identified subscale is weighted +1, and the intrinsic subscale is weighted +2. In other words, the controlled subscales are weighted negatively, and the autonomous subscales are weighted positively. The more controlled the regulatory style represented by a subscale, the larger its negative weight; and the more autonomous the regulatory style represented by a subscale, the larger its positive weight.
Summary of the Scoring Procedures:

Self-regulatory style values have been used in three ways in different analyses:

First, each subscale score is used separately in the analyses so that participants have a score for each style.

Second, a Relative Autonomy Index is computed by weighting the subscale scores and combining them (see, e.g., Grolnick & Ryan, 1989).

Third, a score for controlled regulation was formed by averaging across external and introjected items, and a score for autonomous regulation by averaging across identified, integrated, and/or intrinsic items (e.g., Williams, Grow, Freedman, Ryan, & Deci, 1996).

3.3 PROCEDURE

The study was conducted in two phases, a quantitative study in the first phase and a qualitative one in the second phase. The first phase collected data from a sample of 240 students drawn from two school types (government and private), three different board of examination (U.P, I.C.S.E/I.S.C and C.B.S.E) and the two genders. The second phase involved case studies of eight students drawn from the sample of 240 students of phase one. These cases were drawn on the basis of their stress scores with four cases coming from the group of ten most highly stress students and four from the group of most low stress students.

The first phase of data collection was done in the months of February and March, in the year 2008 which was just after the pre-boards and before the board examination in the case of X and XII standard students which start in the first or second week of March.
Chapter 3: Method

and just before the final examination for the IX and XII standard student, which too begin in mid March. The study was thus timed to coincide with the period of high stress among the students prior to the major examinations (i.e. board exams and the final exams of the year). It was expected that during this period the students would be in a position to reflect back on their experience with the educational system and their feelings at the end of the academic year.

Once the tools were identified, a pilot study was conducted to examine if the tools were suitable for the target group of the study, and if the subjects understood the statements of the tools well. However, the pilot study clearly indicated that some of the tools were not expressing things in the way that was easily comprehended by Indian students. We modified the language of the tools in order to make them more suitable, simpler and for better understanding of the students.

After the inputs from the pilot study were included, with help from Experts and supervisors, the study were conducted in the district of Lucknow in the months of February and March 2008. The target population was of students from standard IX to XII from government and private schools. Students from standards IX, X, XI and XII were identified and the questionnaires were distributed to the students who agreed to be part of the study after seeking the consent of the parents. The conduct of the tests for the government schools was done in the school premises as the authorities granted the permission to do so, however the same was not possible for private schools as they did not allow conduct of such study in their institutions. The tests were put together in one stack where the stress scale was the first measure followed by the self-esteem, AFS, LCQ and SAR-Q. This sequence of the test was determined to make the student aware of
his/her experienced stress and then, the other tests were conducted to determine the consequences of stress on self-esteem and to explain the reason behind the stress experienced in the school settings. The questionnaires were handed over to the students to be filled at home and collected the next day. In case of confusion, the students got back and their doubts were addressed after which they completed their response sheets and handed them to the Researcher. The students were requested to fill in the first page (of the details of subjects) of their set of scales. After each student finished the entire set of the scales, the sheets were checked for any omissions and in case of an omission the student was requested to fill in his/her answer in the concerned response category. After the collection of the response sheets, the students were informed about the study that aims to look into the dynamics of education and to identify the factors that are important to make the teaching and learning more productive and effective for the students. A similar procedure was followed for the collection of data till the required 240 subjects were gathered.

The second phase of the study was conducted in the month of December 2008 with a total of eight cases four each from high and low stress groups of students. These students were interviewed after they expressed their consent for the interview. The interviews for the government-school students were done in the school premises as permission from the authorities was granted, the private school cases were interviewed at their homes as authorities did not provide the permission to conduct the interview on the school premises. The interviews were done in a separate room where the researcher and the student were one to one. Each session lasted for 30 to 45 min. and complete
Chapter 3: Method

Confidentiality was assured to the subject. Each interview was recorded and transcripts were made for later analysis through the method of content analysis.

The data collected through the above methods and tools was put to several statistical analysis using the Statistical Package for Social Sciences (SPSS) 13th version. The statistical findings and results were further substantiate by adding qualitative information collected in the second phase of the study through the method of content analysis. The results thus derived are stated in the next chapter.