CHAPTER – III
RESEARCH METHODOLOGY AND DESIGN

“A method is the means or manner of determining whether a theoretical construct or proposition is true or false. Each of the specific discipline has developed criteria and conventions about what constitute legitimate tests of theory and what lines of development researchers are to follow as they move from data to knowledge claims. Methodology has as much to do with reasoning as it does with data. There are rules for testing knowledge, and it is the set of rules that define methodology in a discipline”.

-Rychlak (1968)

Research methodology is a way to systematically investigate a research problem. It involves various steps for the conduct of research in a systematic manner. It is essential to define the problem and state the objectives and hypotheses, clearly. The research design provides the details, regarding what, where, when, how much by what means, concerning an inquiry.

The plan and procedure spell out the description of the sample, the measures used and the steps taken in carrying out the investigation. A detailed description of the sample is needed in order for the reader to assess the generalisability of research findings. This is also helpful to determine the degree to which the research sample is representative of the population. The population from which the sample is drawn should be defined clearly and a detailed description needs to be given in the procedure for selecting the sample.

Plan and procedure basically highlight details of the work carried out by the investigator, and determine, in turn, its destiny. It is the character of the technique on which the degree of precision, objectivity, reliability and validity of the results depend. The selection of the technique and devices by an investigator is determined by the nature of the problem, objectives of the study, cost, time, function, availability of the subjects and other resources at the disposal of the investigator, followed by a presentation of the steps of the procedure adopted for the conduct of the study. The
statistical techniques required to be used at various stages of the study need also to be briefly described.

3.1. RESEARCH DESIGN

Research is a systematic activity and, as a process, it employs a scientific methodology. A research design provides a framework within which the activity is conducted. According to Johada and Cook (1957), a research design is the arrangement of condition for the collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.

As a blueprint of the research design involved in this study, the following components would constitute the format of the investigation.

- Methods of the Study
- Tools of the Study
- Sample of the Study
- Data Collection
- Techniques used for Data Analysis

Descriptive Method

“Descriptive research is concerned with hypotheses formulation and testing and the analysis or relationship between non-manipulated variables and the development or generalizations”.

- Best and Kahn

The present investigation mainly uses the descriptive method to study career maturity of senior secondary students in relation to study habits, family environment and academic achievements. The objectives of the study are:

3.2 OBJECTIVES OF THE STUDY

The present study is designed to realize the following objectives:–

1. To study the relationship between career maturity and family environment among senior secondary students.
2. To study the relationship between career maturity and study habits among senior secondary students.
3. To study the relationship between career maturity and academic environment among senior secondary students.
4. To study the difference between the mean scores of career maturity among male and female senior secondary students.
5. To study the difference between the mean scores of career maturity among students having good and poor study habits.
6. To study the difference between the mean scores of career maturity among students having good and not good family environment.
7. To study the difference between the mean scores of career maturity among students having high and low academic achievement.
8. To study the difference between the mean scores of career maturity among male students having good and poor study habits.
9. To study the difference between the mean scores of career maturity among female students having good and poor study habits.
10. To study the difference between the mean scores of career maturity among male students having good and not good family environment.
11. To study the difference between the mean scores of career maturity among female students having good and not good family environment.
12. To study the difference between the mean scores of career maturity among male students having high and low academic achievement.
13. To study the difference between the mean scores of career maturity among female students having high and low academic achievement.
14. To study the difference between the mean scores of career maturity among male and female students having good study habits.
15. To study the difference between the mean scores of career maturity among male and female students having poor study habits.
16. To study the difference between the mean scores of career maturity among male and female students having high academic achievement.

17. To study the difference between the mean scores of career maturity among male and female students having low academic achievement.

18. To study the difference between the mean scores of career maturity among male and female students having good family environment.

19. To study the difference between the mean scores of career maturity among male and female students not having good family environment.

3.3 HYPOTHESES OF THE STUDY

1. There is no significant relationship between career maturity and family environment among senior secondary students.

2. There is no significant relationship between career maturity and study habits among senior secondary students.

3. There is no significant relationship between career maturity and academic environment among senior secondary students.

4. There is no significant difference between the mean scores of career maturity among male and female senior secondary students.

5. There is no significant difference between the mean scores of career maturity among students having good and poor study habits.

6. There is no significant difference between the mean scores of career maturity among students having good and not good family environment.

7. There is no significant difference between the mean scores of career maturity among students having high and low academic achievement.

8. There is no significant difference between the mean scores of career maturity among male students having good and poor study habits.

9. There is no significant difference between the mean scores of career maturity among female students having good and poor study habits.

10. There is no significant difference between the mean scores of career maturity among male students having good and not good family environment.
11. There is no significant difference between the mean scores of career maturity among female students having good and not good family environment.

12. There is no significant difference between the mean scores of career maturity among male students having high and low academic achievement.

13. There is no significant difference between the mean scores of career maturity among female students having high and low academic achievement.

14. There is no significant difference between the mean scores of career maturity among male and female students having good study habits.

15. There is no significant difference between the mean scores of career maturity among male and female students having poor study habits.

16. There is no significant difference between the mean scores of career maturity among male and female students having high academic achievement.

17. There is no significant difference between the mean scores of career maturity among male and female students having low academic achievement.

18. There is no significant difference between the mean scores of career maturity among male and female students having good family environment.

19. There is no significant difference between the mean scores of career maturity among male and female students not having good family environment.

3.4 VARIABLES OF THE STUDY

Independent and Dependent Variables

The dependent variable in this study is Career Maturity. The independent variables in this study are:-
- Family Environment
- Study Habits
- Academic Achievement.

3.5 POPULATION AND SAMPLE

The male and female students of senior secondary schools of Rohtak district constituted the population of the subjects in the present study. Owing to certain
problems was not feasible to study the whole population so the parameters have been estimated by the sample statistics. Various sampling methods are available to pick up a representative sample. The random sample method was used to draw the sample for the present study. The Rohtak district constituted the area of the study. The random sample method was used to draw the school sample for the present study. The selection of schools was made on random basis after processing list to all the schools in Rohtak district. While the investigator visited each school, he obtained the list of all students. Also out of this list, he randomly picked up sixteen students from each school. If a student earmarked for this study or was not found present in the school, it was later on conducted at his residence in the same way, if someone refused to co-operate with the study, another student was replaced on the random basis. But such cases were very few and rarely noticed. Thus 320 students from different schools with 16 students from each school constituted the sample for this study.

Considering the resources limitations, it was decided to include the co-ed types of schools: male and female students from these schools were taken. The sample of 320 students includes both males as well as females. As it was impractical to test and evaluate every school so, the sample taken is 320 students from 20 schools.

**Sample [300 Students: 160 male students + 160 female students]**

The present study has been conducted on a sample of 320 senior secondary male and female students of Rohtak district only. The sample has been selected by random sampling technique from the population of male and female senior secondary students. The present study was conducted on a sample of 320 senior secondary students in Rohtak district only. After implementing the family environment, study habits inventory and analyzing the scores of academic achievements scores of 320 students, 25 per cent high scorers and 25 per cent low scorers have been taken into consideration as good and not good family environment, good and poor study habits and high and low academic achiever students. So, 80 students having good and 80 students having not good family environment, 80 students having good and 80 students having poor study habits and 80 students having high and 80 students having low academic achievements have been taken into consideration.
Layout of the Sample:

N=320

Male (160)  Female (160)

Good Family Environment (80)  Average Family Environment (160)  Poor Family Environment (80)

N=320

Male (160)  Female (160)

Good Study Habits (80)  Average Study Habits (160)  Poor Study Habits (80)

N=320

Male (160)  Female (160)

High Achievers (80)  Average Achievers (160)  Low Achievers (80)
### Table 3.1
Name and Numbers of Senior Secondary Schools from where data were collected

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the School</th>
<th>Class selected</th>
<th>No. of students</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Govt. Sr. Sec. School, Kahnaur</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>L.B.S. Sr. Sec. School, Kahnaur</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Govt. Sr. Sec. School, Sundana</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>G.R.M. Govt. Sr. Sec. School, Sundana</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Govt. Sr. Sec. School, Kalanaur</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Govt. Sr. Sec. School, Sisar Khas</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>S.V.M. Sr. Sec. School, Meham</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Govt. Sr. Sec. School, Bahalba</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>B.K.N. Govt. Sr. Sec. School, Kharkhada</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Saraswati Vidya Mandir Sr. Sec. School, Bahalba</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Govt. Sr. Sec. School, Madina</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Govt. Sr. Sec. School, Baliana</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Vidya Bhawan Sr. Sec. School, Bohar</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>S.R.S. Sr. Sec. School, Rohtak</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Govt. Sr. Sec. School, Model Town, Rohtak</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Saini Sr. Sec. School, Rohtak</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Mohindra Model Sr. Sec. School, Rohtak</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Govt. Sr. Sec. School, Gandhra</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Govt. Sr. Sec. School, Dattur</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Govt. Sr. Sec. School, Bhalaut</td>
<td>XI</td>
<td>08</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total No. of Students</strong></td>
<td></td>
<td><strong>160</strong></td>
<td><strong>160</strong></td>
<td></td>
</tr>
</tbody>
</table>
3.6 TOOLS USED

1. Career Maturity Inventory (CMI) by Nirmala Gupta (1989)
3. Study Habits Inventory (SHI) by M Mukhopadhyay & D. N. Sansanwal (2002)
4. Academic achievement scores of students have been taken from the previous results of their classes.

3.6.1 Description of Career Maturity Inventory (CMI)

The career maturity inventory (CMI) (Crites 1973, 1974a, 1974b) has been conceived and constructed a measure the maturity of attitudes and competencies that are critical in realistic career decision making to assess the maturity of these career behaviours, the CMI provides two types of measures.

I. The Attitude Scale

II. The Competence Test

The attitude scale elicits the feelings, the subjective reactions, the dispositions that the individual has towards making a career choice and entering the world of work. Is work seen as a meaningful focus of life or is it viewed as drudgery? How involved and independent is the individual in the choice process? Five attitudinal variables being surveyed by attitude scale are:-

I. Decisiveness in career decision making
II. Involvement in career decision making
III. Independence in career decision making
IV. Orientation to career decision making
V. Compromise in career decision making

The scale thus maps the conative aspects of decision making. The competence test measures the cognitive variables in choosing an occupation. These include appraisal of the individual’s job related capabilities (strengths and weakness) knowledge about the world of work aptness in matching personal characteristics to occupational requirements, foresight in planning for a career and effectiveness in

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dealing with the problems which arise in the course of career development. In all, then there are five parts of competence test.

Part 1 - Self appraisal (SA) (knowing your self)
Part 2 - Occupational Information (OI) (knowing about jobs)
Part 3 - Goal selection (GS) (choosing a job)
Part 4 - Planning (P.L) looking ahead
Part 5 - Problem solving (PS) (what should they do ?)

Taken together, the Attitude scale and the competence test provide both an extensive and intensive inventory of the critical behaviours in nature career decision making and development.

The attitude scale and competence test (Crites 1973, 1978) have scoring keys based on the student majority responses of grade XII of the American standardization sample. Grade XII has been taken as the most mature group in the adolescent stage. The rational for this is that an individual’s career maturity is assessed in relation to the most mature person in his group or in his life stage.

Reliability of Attitude Scale

A test-retest reliability with an interval of one month was calculated on Indian samples drawn from classes VIII, X and XII with N=40. The obtain correlation ranged from .78 to .82.

Validity of Attitude Scale

The scale has a high content and constructs validity as expressed by experts in guidance. The items of the attitude scale show developmental scores over classes VIII, X and XII (on the standardization sample) which also established the validity of the scale in the Indian sample.

Reliability of the Competence Test

Split has reliability has been calculated for the all five parts for the three grade levels with N=40. The obtained correlation range from .54 to .88 which are reported in the table below.
Reliability Co-efficient of the Competence Test

<table>
<thead>
<tr>
<th></th>
<th>XII</th>
<th>X</th>
<th>VIII</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1</td>
<td>.88</td>
<td>.57</td>
<td>.62</td>
</tr>
<tr>
<td>Part 2</td>
<td>.55</td>
<td>.70</td>
<td>.55</td>
</tr>
<tr>
<td>Part 3</td>
<td>.56</td>
<td>.79</td>
<td>.55</td>
</tr>
<tr>
<td>Part 4</td>
<td>.75</td>
<td>.80</td>
<td>.55</td>
</tr>
<tr>
<td>Part 5</td>
<td>.55</td>
<td>.57</td>
<td>.61</td>
</tr>
</tbody>
</table>

(All values are significant at .01 levels)

Validity

1. **Content Validity:**

   Most of the items of the adapted competence tests are original competence test items with only slight modifications in terminology. The items are theoretically meaningful and they are theoretically related to grade as an index of time. Out of twenty items, fourteen items were selected which met the discrimination criteria. They also meet the developmental criteria as the scores change systematically between grades VIII to XII. The modified items have also been discussed at length with experts in the guidance area regarding their suitability for Indian students.

2. **Construct Validity:**

   The construct which the parts of the competence test were designed to measure is the career choice competencies factor in the model of career maturity. To test the degree of interrelationship between five parts of the adapted competence test, the interrelationship between five parts of the adapted competence test were studied when the test was administered on the Indian standardization sample 869 students of the classes VIII, X and XII numbering 290, 286 and 293 respectively. The inter correlations among the five parts range from .30 to .42 hypothesized by Crites. Thus the finding on the Indian sample for adapted competence test supports the construct validity of the test.

Scoring

In order to provide maximum consistency in scoring, the scoring stencils are prepared for easy and accurate scoring. In test 1st attitude scale, the correct responses of each items is visible in the circle or scoring stencil, if marked responses are visible.
in the circle or scoring stencil. The responses are treated as correct and for one correct response one mark is assigned. The total number of correct responses in this test is known as the raw score of test 1st.

In the test IIInd competence test, the correct responses for each of the five parts are also visible in the circle of scoring stencil. A correct response is one for which the scoring stencil alternate are only marked. One mark is assigned for each correct response area wise and the total is known as the raw score of that sub test. An omitted or multiple marked items is treated as wrong response and 0 scores are assigned to it.

3.6.2. Description of Family Environment Scale (F.E.S.)

It was developed by Dr. Harpreet Bhatia & Dr. N.K. Chaddha (2002) of department of Psychology, University of Delhi, in the year 1993. This family environment scale is based on the family environment scale developed by Moos (1974) This scale consists of three dimensions which are taken from Moos scale although the concept of dimensions are taken from Moos scale all the subscales in each dimensions are operationally defined with certain modifications of original three of the original subscales were dropped and one new subscale was added. Selection of Dimensions

This family environment scale is based on the family environment scale by Moos (1974). This scale consist of three dimensions which are taken from Moos; scale. Although the concept of dimensions was taken from Moos; scale, all the subscales in each dimension were operationally defined with certain modifications of original definitions. Three of the original sub scales were dropped and one new sub scale was added. The dimensions, along with their operational definitions, were given to eight judges. After making the suggested changes and modifications, they were again given to eight judges. Only those dimensions and contents of the dimensions having at least 75 percent agreement were retained. These are:

A. Relationship Dimensions

a) Cohesion – Degree of commitment, help and support family environment provide for one another.
b) **Expressiveness**-Extent to which family members are encouraged to act openly and express their feelings and thoughts directly.

c) **Conflict** – Amount of openly expressed aggression and conflict among family members.

d) **Acceptance and Caring**-Extent to which the members are unconditionally accepted and the degree to which caring is expressed in the family.

B) **Personal growth dimensions**

e) **Independence** – Extent to which family members are assertive and independently make their own decisions.

f) **Active-recreational Orientation**- Extent to participation in social and recreational activities.

C) **System maintenance dimensions**

g) **Organization**- degree of importance of clear organization structure in planning family and responsibilities.

h) **Control**- degree of limit setting in the family.

**Item analysis**

The scale was administered to selected sample of 350 subjects. The age range of the subjects was 17 to 50 years and they belonged to the middle-class socio-economic strata. Subjects were asked to respond to their items by marking any one of the five responses: options strongly agree, agree, neutral, disagree and strongly disagree. The items were scored as:

**Item analysis (F.E.S.)**

<table>
<thead>
<tr>
<th>Positive Items</th>
<th>Response</th>
<th>Negative Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Strongly Agree</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Agree</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Neutral</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Disagree</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>Strongly Disagree</td>
<td>5</td>
</tr>
</tbody>
</table>

On the basis of the total score group was divided into two- a high score group and low score group n. these scores were then subjected to chi-square computation. Only those items with atleast 0.05 level of significance were retained. Thus, out of the
b104 items retained after rating, 35 items were rejected and 69 items were retained in the final form. The final scale along with the response categories has been shown in the next table.

**Scoring Key (F.E.S.)**

<table>
<thead>
<tr>
<th>Sub Scale</th>
<th>Positive Items</th>
<th>Negative Items</th>
<th>Total Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A) Relationship Dimension</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Cohesion</td>
<td>1,2,9,24,37,43,55,60,63,66,69</td>
<td>17,49,31</td>
<td>13</td>
</tr>
<tr>
<td>2) Expressiveness</td>
<td>10, 25, 38, 44,56</td>
<td>2,18,32,50</td>
<td>9</td>
</tr>
<tr>
<td>3) Conflict</td>
<td>11,19,39,51,61,67,</td>
<td>3,26,33,45,57,64</td>
<td>12</td>
</tr>
<tr>
<td>4) Acceptance and caring</td>
<td>8,16,36,42,48,54,59,62,</td>
<td>23,30,65,68</td>
<td>12</td>
</tr>
<tr>
<td>5) Independence</td>
<td>4,27,46,52</td>
<td>12,20,34,40,58</td>
<td>9</td>
</tr>
<tr>
<td>6) Active Recreational</td>
<td>5,13,21,28,47</td>
<td>35,41,53</td>
<td>8</td>
</tr>
<tr>
<td><strong>C) System Maintenance Dimension</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Organization</td>
<td>14</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>8) Control</td>
<td>7,22</td>
<td>29,15</td>
<td>4</td>
</tr>
</tbody>
</table>

**Reliability & Validity**

Spilt –half reliability was found for the present sale for this purpose the present scale was split in to two halves the score of each dimension were also split in to two halves. The scores for each of these halves were then co related from this self – co-relation of the half tests, the reliability coefficient of the whole test was estimated using the spearman –brown prophecy formula. Both face and content validity were tested by giving the scale to eighteen experts to evaluate the test items. Only those items with at least 75 percent agreement among the judges were retained. For content validity, the dimensions of the family environment these definitions were also subjected to the judgment of the eight experts in the second step. The reliability coefficients thus obtained are as follows:
Reliability Co-efficient F.E.S.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Sub scales</th>
<th>Reliability Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cohesion</td>
<td>0.92</td>
</tr>
<tr>
<td>2</td>
<td>Expressiveness</td>
<td>0.88</td>
</tr>
<tr>
<td>3</td>
<td>Conflict</td>
<td>0.984</td>
</tr>
<tr>
<td>4</td>
<td>Acceptance &amp; caring</td>
<td>0.086</td>
</tr>
<tr>
<td>5</td>
<td>Independence</td>
<td>0.070</td>
</tr>
<tr>
<td>6</td>
<td>Active recreational</td>
<td>0.048</td>
</tr>
<tr>
<td>7</td>
<td>Organization</td>
<td>0.75</td>
</tr>
<tr>
<td>8</td>
<td>Control</td>
<td>0.48</td>
</tr>
</tbody>
</table>

Overall test reliability coefficient=0.95

Administration

The individual taking the rest be seated with proper seating arrangements (as usually done for examination to avoid coping). It would be better if at one time a batch of 30 students is given the test .try to avoid large batches. Indicate the value of the result of this test to the testees explain to them that the results on this test would in no way influence their academic examination results or promotion. Assure them that this test is to know about their family environment and their responses shall be kept strictly confidential. Questions arising about the purpose and use of the test should be answered frankly and honestly. Before starting the test, please see that the testees have nothing but only a pen or a pencil with them let all the books and note-books be kept inside the desk. Make sure that each testees has a pen/pencil with him/her. A wise tester would always be in possession of a few spare pencils for the purpose. First distribute the answer sheet to each testee and ask him/her to fill in the required information about him/her. Check that every testee has made the necessary entries on the answer sheet. Now, explain how to answer on the given answer sheet. Distribute the test booklets, one each to each testee. Read the instructions clearly from the booklet aloud, while the testees are asked to read silently simultaneously. Ensure that the instructions have been understood correctly by all the testes .invite doubts and remove them before the groups starts the test. Ask if everyone is in readiness to begin
let the group start to answer. Supervise the group and make sure that all are answering in correct way. Check and correct if someone has not adopted the correct mode of response. Make sympathetic enquiries from a few testees whether they experience any difficulty in responding to the test items. If someone needs to know the meaning of certain words, he/she should be told. However correct responses have to be decided independent by the testees themselves. When the testees have completed the test, collect the test booklets and answer sheets and check the number of booklets and answer sheets.

Scoring

After collecting the data scoring has been done. In this test there are 69 items and each statement has its score. There are two types of statements: positive & negative and there are five response options: strongly agree, agree, neutral, disagree and strongly disagree. The items were scored as:

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Negative</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

3.6.3 Description of the Study Habit Inventory

The Study Habit Inventory was prepared by M. Mukhopadhyaya and D. N. Sansanwal (2002) published by National Psychological Corporation, Agra for first time in 1983 (Rev. 87, 92). This instrument was designed to measure the study habits of students at the post graduate level.

I. Comprehension:

There are certain specific behaviours with respect to a student’s study behaviour which are geared to better comprehension for a ex-before reading a lesson intensively the student may try to catch on what the lesson is about. By doing so, he may actually try to establish a mental set for studying a particular content. Similarly he may try to relate the materials learned in one subject with those learned in another so that he may subsume the now learning with the previous knowledge.
II  Concentration

Concentration is a very important predictor of effective study habits. Some students are capable of concentrating easily and for long. Some others take time to concentrate but once they concentrate, they can continue for long, while still others find it difficult to concentrate at all. Some may read only, when they are in a mood to do so. Others may require stimulations through tea, coffee, smoking etc. for concentration.

III.  Task Orientation

If a student who has to study a series of subjects and has to develop different levels of cognition, the task orientation is an important component of the study habits. For e.g., some students study different subjects according to the fixed routine daily, weekly or monthly. Certain students fix the time target for completing certain academic tasks, student’s orientation and behaviours towards accomplishment of the tasks in a predecided time frame is task orientation.

IV  Sets

By studying sets we mean the physical and situational characteristics, which a student adopts for study. For example, some students learn more when they read lying on the bed whereas some others may as well sleep, if they read lying on the bed.

V.  Interaction:

Although both teaching and learning in our colleges have remained monoaction and almost the private affair of the individual teachers or students respectively there are enough evidences to conclude that interaction of a student with his teacher or parents or his friends contribution positively towards better learning. This interaction is a significant component of study habits. For example when a student does not understand while studying he may go to some of his friends for a discussion. Among the postgraduate students in certain Universities a common practice is to form small groups of three or four students who study together.

VI  Drilling:

Drilling means practicing a particular learning again and again while drilling is a common practice at school level, it is very important component of good study habits amongst students of science and technology since drilling is almost essential in
case of learning mathematics, chemistry, engineering drawing etc. These students may revise the topics and tasks already learned more than one.

VII Supports:
Study in a particular discipline gets a sound back up from a broader study base. A student habit of studying different types of books other than text books or newspapers and magazines may be helpful in the learning of his subject.

VIII Recordings:
At higher levels, any good teacher hardly teaches on the basis of a single book. For good performance of the students, it is also necessary to read number of books, recording in the form of text, class notes on preparing one’s own study notes are hence very important some students prepare their own notes on the basis of class lectures, which from the basis for their own dependent study. Many students depend only on the class notes indicated by the teacher.

IX Language:
Language capability is an important predicator of effective study habits. For e.g. Where the medium of instruction is English, it is important to see with what facility and case does a student read books in English. This effect his concentration comprehension and duration of study

In this study habit inventory there is a series of 52 statements pertaining to above mentioned nine kinds of study behaviour. Each statement refers to some kind of habit on the other.

Reliability
The reliability of the whole inventory was worked out by using split half method. The reliability co efficient is 91, which is fairly high and indicate that the inventory is reliable.

Validity
The inventory besides having high face validity number 80 and has validity co efficient 0.69. The above validity co-efficient indicates that the inventory has sufficient high validity and significant relationship with other variables, which influence the study habits.
**Scoring of SHI**

The inventory comprises 52 items pertaining to line sub-components namely comprehension (12 items), concentration (10 items), task orientation (9 items), study sets (7 items), interaction (3 items), drilling (4 items), supports (4 items), recording (2 items) and language (1 item) which characterize the basis of study habits. The items have been drafted in affirmative (34 items) and negative (18 items) forms.

Affirmative (+) items—1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 22, 23, 24, 25, 27, 29, 30, 31, 32, 34, 38, 39, 41, 43, 44, 47, 49, 50, 51, 52 (34 items).

Negative (-) items—10, 16, 17, 18, 19, 20, 21, 26, 28, 33, 35, 36, 37, 40, 42, 45, 47, 48 (18 items).

The scoring guide given in the last page of consumable booklet of the inventory clearly stipulates that a positive item should be given 4, 3, 2, 1 and 0 for responses ‘always’, ‘frequently’, ‘sometimes’, ‘rarely’ and ‘never’ respectively, whereas the scoring process should be reversed as 0, 1, 2, 3 and 4 for negative items. Maximum total score 208 and minimum total score 0.

Positive items—4, 3, 2, 1, 0.

Negative items—0, 1, 2, 3, 4.

### 3.6.4 Academic achievement Scores

Academic achievement of their previous class was considered as criteria to divide the sample into high academic achievers and low academic achievers. Investigator collected the information of their previous class from the subjects studying in different senior secondary schools situated in Rohtak district.

### 3.7 COLLECTION OF THE DATA

After looking into the nature of study, it was necessary to obtain the information of every item included in the questionnaire. The data was collected individually. The researcher went to the school to contact the teachers for the selection of the students. He established proper rapport with them and then administered the questionnaire. The selection of students was done on random basis. Thus the investigator visited the schools and collected the data himself from each school 16 students were selected.
3.8 STATISTICAL TECHNIQUES USED

The Mean and Standard Deviation is calculated of the entire test conducted on the students, t-test and Karl Pearson’s Product Moment Correlation are used to see the difference the correlation between career maturity with family environment, study habits and academic achievement by using SPSS 17 software.

3.9 ANALYSES AND INTERPRETATION

A list of schools having eleventh classes of Rohtak district is procured. Schools are selected from the list by random sampling. Then from those schools 320 students of eleventh classes is randomly selected. The principals of these schools and class teachers of eleventh classes are contacted and a time schedule of collecting data will be finalized. The tools for career maturity, family environment and study habits are administered. Scoring is done as per the guidelines given in the respective manuals. The data thus collected is subjected to statistical treatment. After administration of the standardized test, the answer sheet is collected and the scoring is done with the help of manual provided with the test series. The mean and standard deviation is calculated by separating the each test.

To find out the difference among male and female students, students having good and not good family environment, students having good and poor study habits, and students having high and low academic achievements ‘t’ test was used and to see difference. The see relationship among variables, i.e. Career maturity, family environment, study habits and academic achievements of the students, Karl Pearson’s Product Moment Correlation technique was employed. The Null Hypothesis is tested at 0.05 and 0.01 level. The interpretation is done purely on the basis of objectives and hypotheses keeping in mind.