Chapter III

Methodology
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METHODOLOGY

The third chapter explains the design of the study, the size and selection of the sample, the sources of data and methods of gathering data, the tools used and the statistical procedure employed in the present study.

DESIGN OF THE STUDY

To design is to plan, that is, designing is a process of deliberate anticipation directed towards bringing an expected situation under control. It is an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.

A systematic procedure is required to collect the necessary data which helps to achieve the objectives and to test the hypotheses formulated for the study.

The present study was designed to find the relationship of career maturity of adolescents with intelligence, self-concept, academic achievement and family environment. In order to study this relationship, the descriptive-survey method of investigation coupled with the techniques of differential and correlation analysis was used.

According to Best (1981), a descriptive study describes and interprets “What is”. It is concerned with conditions or relationships that exist, opinions that are held, processes that are going on, effects that are evident, or trends that are developing. It is primarily concerned with the present, although it often considers past events and influences as they relate to current conditions. In other words, descriptive research studies are designed to obtain precise information concerning the current status of phenomena and whenever possible to draw general conclusions from the facts discovered.

According to Upasini (1987), descriptive research is a structured attempt to obtain facts and opinion about the correct status of things. It seeks to ascertain the prevailing conditions at the time of the study. Describing the current status is a kind of assessment that seems to be the basic, preliminary step to the solution of many educational problems.
Smith and Glass (1987) stated that the fundamental purpose of descriptive survey research is to describe the characteristics of variables in population by directly examining samples.

Best (1992) describes that survey method gathers data from a relatively large number of cases at a particular time. It is not concerned with characteristics of individuals as individuals. It is concerned with the generalized statistics that results when data are abstracted from a number of individual cases. It is essentially cross-sectional in nature. It involves a clearly defined problem and definite objectives. It requires expert and imaginative planning, careful analysis and interpretation of the data gathered and logical and skillful reporting of the findings. In other words, survey studies are conducted to collect detailed description of existing phenomenon with the purpose of employing data to justify current conditions and practices or to make more intelligent plans for improving them.

In the light of above description, the present study is descriptive in the sense that it aims at describing the nature and distribution of variables. As such it describes the nature of career maturity, intelligence, self-concept, academic achievement and family environment of adolescents in eleventh class.

The study is survey, as it has definite objectives, planning, analysis and interpretation of the data gathered, skillful reporting of the findings.

The study involves the comparisons of different subgroups, on the basis of sex, type of academic and vocational courses, and the area in which the school is located.

The study is correlational in approach. It aims at finding out the relationship between the criterion variable of career maturity and the independent variables of intelligence, self-concept, academic achievement and family environment.

SAMPLE OF THE STUDY

The primary purpose of research is to discover principles that have universal application, but to study the whole population to arrive at generalizations would be impracticable, if not impossible. The process of sampling makes it possible to draw valid inferences or generalizations on the basis of careful observation of variables within a relatively small proportion of the population. Sampling does not consist in collecting data
casually from any conveniently located units. Rather, to obtain a representative sample, one systematically selects each unit in a specified way.

According to Best (1992), a sample is a small section or proportion of a population selected for observation and analysis that represents all the traits and characteristics of the population.

Almost, all the research studies in education may be termed as sample studies, because data are usually collected from parts of the whole population for which the problem is being investigated. Every research has to resort to sampling.

For the present study, stratified random sampling technique was used for selecting the adolescents in secondary schools.

According to Garrett (1981), stratified sampling is applicable when the population is composed of subgroups or strata of different sizes. Therefore, a representative sample must contain individuals drawn from each subgroup in accordance with the sizes of the subgroups. Within each subgroup or strata, the sampling is random as nearly as possible.

Upasini (1987) stated that stratification is used when it can produce more accurate estimate of population characteristics than simple random sampling designs. There are various factors on which stratification is often done. Selection of these factors depends upon the nature of the study, the various dimensions included therein and the nature of the population to be used for the purpose.

As the sample was taken from the subgroups of academic and vocational streams, the sampling was stratified in nature.

In the present study, the sample consisted of 640 adolescents studying in the government schools of Amritsar district of Punjab. The representativeness of the sample was ensured with respect to class, sex, and availability of academic and vocational groups in the school. Efforts were made to keep the number of boys exactly equal to girls, and number of students in various courses in urban and rural school were also made equal. The detailed break up of the total sample is given below.
Break up of the sample from academic and vocational groups
The list of rural and urban schools selected in the present study is shown in Table 3.1.

**Table 3.1**

**Showing List of Rural and Urban Schools and Number of Students**

*(Academic and Vocational) taken from each School*

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of School</th>
<th>Type of School</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Govt. Girls Senior Secondary school, Mall Road, Amritsar.</td>
<td>Urban</td>
<td>60 20</td>
</tr>
<tr>
<td>2.</td>
<td>Govt. Girls Senior Secondary School, Mahna Singh Road, Amritsar.</td>
<td>Urban</td>
<td>60 20</td>
</tr>
<tr>
<td>4.</td>
<td>Govt. Senior Secondary School, Town Hall, Amritsar.</td>
<td>Urban</td>
<td>60 20</td>
</tr>
<tr>
<td>5.</td>
<td>Govt. Senior Secondary School, Chawinda Devi, Amritsar.</td>
<td>Rural</td>
<td>60 20</td>
</tr>
<tr>
<td>7.</td>
<td>Govt. Senior Secondary School, Jethuwal, Amritsar.</td>
<td>Rural</td>
<td>60 20</td>
</tr>
<tr>
<td>8.</td>
<td>Govt. Senior Secondary School, Talwandi, Amritsar.</td>
<td>Rural</td>
<td>60 20</td>
</tr>
</tbody>
</table>

**CRITERIA OF SELECTION OF SCHOOLS**

1. Only government senior secondary schools were selected.
2. Only those government senior secondary schools were selected which offered all the streams viz. academics (arts, science, commerce) and vocational stream courses.
CRITERIA OF SELECTION OF STUDENTS

1. Students were selected from eleventh class.
2. From the academic stream, students from different academic courses (science, commerce, arts) were selected.
3. From among the vocational courses (i.e. computer, electronics and commercial arts, home science etc.) students from different courses were selected.

TOOLS USED

For the collection of data, following tools were used:

1. Indian adaptation of Career Maturity Inventory (CMI) (Originally prepared by Crites) adapted by Gupta (1989).
4. Tenth class final examination scores of the students.

DESCRIPTION OF THE TOOLS

While choosing the tests for the present research, following things were kept in mind:

(a) Efficiency of the tool, which includes the reliability and validity.

(b) Ease of the administration and scoring i.e. can be administered on adolescents within age 16-18 years.

(c) Level of understanding of the respondents i.e. the test contains fairly simple items which could be understood by the subjects easily without much confusion.

1. Indian adaptation of Career Maturity Inventory (CMI), (Gupta, 1989)

The Career Maturity Inventory (CMI) has been conceived and constructed to 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 measures:
i. The Attitude Scale, and
ii. The Competence Test.

**The Attitude Scale**

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.

Five attitudinal variables being surveyed by attitude scale are:
1. Decisiveness in career decision making
2. Involvement in career decision making
3. Independence in career decision making
4. Orientation to career decision making
5. Compromise in career decision making

The scale thus maps the conative aspects of decision-making.

**The Competence Test**

The competence test measures the cognitive variables in choosing a vocation. These include appraisal of the individual's job related capabilities (strengths and weaknesses), knowledge about the world of work, aptness in matching personal characteristics to occupational requirements, foresight in planning for a career and effectiveness in dealing with the problems that arise in the course of career development.

In all, there are five parts of the Competence Test.

Part 1 - Self-Appraisal; SA (Knowing yourself)
Part 2 - Occupational Information; OI (knowing about a job)
Part 3 - Goal Selection; GS (choosing a job)
Part 4 - Planning; PL (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 behaviour in mature career decision-making and development.

**The Present Scale**

The Attitude Scale and Competence Test have been adapted in Hindi with minor modifications in language and item contents to make it suitable for assessing career maturity of Indian school students.
Adaptation of the CMI Attitude Scale

The fifty items of Attitude Scale was first translated in Hindi. Minor modifications in language were made to make the items easier so that the Indian students understand them. Some fresh items suited to our culture were added.

Reliability of Adapted Attitude Scale

A test-retest reliability with an interval of one month was calculated on Indian samples drawn from class eighth, tenth and twelfth with $N = 40$. The obtained correlations ranged from 0.78 to 0.82.

Validity of Adapted Attitude Scale

The scale has a high content and construct validity as expressed by experts (judges' ratings) in guidance. The items of the attitude scale show developmental scores over classes eighth, tenth and twelfth (on the standardized sample), which also established the validity of the scale in Indian sample.

Adaptation of the Competence Test

The competence test measures the information, comprehension and problem solving competencies, which are critical to realistic career choice.

In each item of the competence test, there is a short description of a person; following it are four statements about the person. The students are required to select one correct statement on the basis of the description. There are twenty items in each part of the original competence test. The original 100 items (in five parts) were translated in Hindi with minor modifications in job descriptions, school situations and problems in test items to make them suitable to Indian occupational structure, social set-up and school situations.

The five parts of the Hindi translated competence test were administered to forty students of class twelfth. Finally, fourteen items from each part were selected on the basis of their discrimination values and suitability.

The five parts of the Competence Test are described below:

1. **Self-Appraisal**

This test is based on the assumption that individuals who can accurately appraise the career relevant capabilities of others are good self-appraisers. The items describe the psychosocial characteristics of a young person in the later years of adolescence.
2. **Occupational Information**

As the individual learns more about himself as he grows older, he also gathers more information about jobs and occupations, consequently, accuracy and extent of job knowledge should differentiate the more from less vocationally mature (Crites, 1964).

3. **Goal Selection**

The test assesses the ability to correctly match people with jobs. In this test, there are descriptions of hypothetical persons whose characteristics are given. The individual has to choose an occupation for the person described. The more vocationally mature person not only has greater knowledge about self and work but also relates one to the other. A person who is able to select a goal appropriate to his capacities is considered vocationally mature.

4. **Planning**

Planning is important for success in vocational life. Planning how the goal is to be achieved is the concept that refers to the tendency of the individual to think about the means, which are necessary to attain a desired end. It means whether the individual simply selects a goal or does he also plan out the entire sequence from its initiation to its completion.

5. **Problem Solving**

The test is based on the assumption that the more mature an individual is, the more capable he or she is in solving problems that arise in decision-making in an integrative, socially acceptable and personally satisfying way.

**Reliability of the Adapted Competence Test**

Split half reliability has been calculated for all the five parts for three grade levels with N=40. The obtained correlations range from 0.54 to 0.88.

**Validity of the Adapted Competence Test**

**Content Validity**

Most of the items of the adapted competence test are original competence test items with only slight modifications in terminology. The items are theoretically meaningful and related to grade as an index of time. Out of twenty items in each of the five parts, fourteen items were selected which met the discrimination criteria. They also
meet the developmental criteria as these scores change systematically between grades VIII to XII.

**Construct Validity**

To test the degree of interrelationship between five parts of the adapted competence test, the intercorrelations between parts of the competence test were studied when the test was administered on the Indian standardization sample of 869 students of class VIII, X and XII numbering 290, 286 and 293 respectively. The intercorrelations among the five parts range from 0.32 to 0.42 as hypothesized by Crites (1974).

**Norms**

The norms of the Attitude Scale and the Competence Test are based on scores obtained on a sample of 869 students (boys and girls) of classes VIII, X and XII representing all types of schools- Government, Private and Government-aided of Delhi region.

**Scoring for Career Maturity**

In order provide maximum consistency in scoring, the scoring stencils were used. In Test I – Attitude scale, the correct responses of each item was visible in the circle of scoring stencil. If marked responses were visible in the circle of scoring stencil, the responses were treated as correct responses, one mark was assigned. The total number of correct responses in this test was considered as the raw score of test I.

In test II Competence Test the correct responses for each of the five parts were also visible in the circle of scoring stencil. One mark was assigned for each correct responses areawise and the total was considered as the raw score of that subtest.

An omitted or multiple marked item was treated as a wrong response 0 score was assigned to it.

2. **General Mental Ability Test (Jalota, 1976)**

Differences in intelligence were measured with the help of General Mental Ability Test designed and constructed by Jalota (1976). It is a verbal test of intelligence. The test includes 100 items arranged in order of increasing difficulty. It measures various components of mental ability with the help of number series, analogies, classifications, reasoning, opposites and similarities. This is a time bound test. The time limit for the test was twenty minutes but another fifteen minutes were taken to give instructions and
helping the students to solve examples given in the beginning of the copy of the test. The author claims that the test was standardized on eighth, ninth and tenth class students and was suitable for the age range of 12 to 18 years.

**Reliability**

The reliability of the test scores has been calculated by finding the correlation between the odd and even halves scored by the tested population. The reliability coefficients found are uniformly high, ranging from 0.703 to 0.979 for various age groups in different classes. The author recommends the test as quite reliable for undergraduate population of Hindi speaking areas.

**Validity**

The validity of the test has been established by factor-analysis of the inter element scores. Three “simple structures” were identified viz. Verbal, Numerical and Reasoning. The author has reported results for multiple correlation with N = 363 students of tenth class and N = 379 of ninth class. In both cases while the coefficients of non-determination are quite low; the contribution of the specific verbal, numerical and reasoning components indicates a fair distribution in the standardization data. The author claims that it is not merely a valid tool for the assessment of general mental ability, but is also a fruitful tool for the prognosis of verbal, numerical and reasoning abilities.

**Scoring**

Every answer sheet was marked and scored with the help of scoring key given in the manual. Each correct answer was given a score of one and a wrong answer was scored as zero. The raw scores were obtained by summing up all the correct answers. The total possible score of the General Mental Ability Test is 100. On the basis of scores obtained on the General Mental Ability Test, students were categorized into high intelligence, average intelligence and low intelligence students.

3. **Self-Concept Inventory (Deo, 1985)**

The Personality Word List (PWL) published by National Psychological Corporation was used in the present study to measure the self-concept of subjects. Originally, the scale contained 212 adjectives then it was revised and the test was reduced to only 90 words of everyday use. It is a self rating scale to be rated by the subject on the five point scale spreading from very much like this, to not at all alike this. There is no
time limit for SCL (PWL). The main purpose of PWL is to help the persons in finding out and assessing what the individual thinks of himself. The results can be used to assist the individual for better adjustment, better achievement and better success in life.

**Scoring**

Scoring of SCL (PWL) was done through the use of stencil hand scoring keys. Transparent keys for positive and negative scores, as well as for neutral words were used. For the rating scale, the weightages for positive words for the five points of, very much like this, much like this, uncertain, not much like this and not at all like this, were 4, 3, 2, 1 and 0 respectively and for a negative word also the weightage was in the same way. The composite score was obtained by subtracting the total negative score from the total positive score. The neutral words were ignored in the scoring.

**Reliability**

Reliability was estimated by test re-test method. For the 15 days interval, the reliability coefficient came out to be 0.89 (N = 595). Taking different time intervals from 15 to 3 and a half months, the coefficients of correlation ranged from 0.62 to 0.86 (N ranging from 65 to 70). The correlations between consistency scores ranged from 0.84 to 0.98. These values indicate a high degree of consistency. It did not reveal any marked difference in the self-concepts of individual over these periods. This proves that the SCL (PWL) gives a stable and reliable measure of self-concept.

**Validity**

The convergent and discriminant validity was found over for SCL (PWL) besides establishing the content validity. For obtaining the convergent validity, another tool SCL which had also been standardised was utilized. The results are given in the following table.

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>E</th>
<th>S</th>
<th>C</th>
<th>A</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intelligence (I)</td>
<td>0.65**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional (E)</td>
<td>0.57**</td>
<td>0.69**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social (S)</td>
<td>0.67**</td>
<td>0.55**</td>
<td>0.80**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Character (C)</td>
<td>0.45**</td>
<td>0.41**</td>
<td>0.46**</td>
<td>0.89**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesthetic (A)</td>
<td>0.43**</td>
<td>0.31**</td>
<td>0.37**</td>
<td>0.18**</td>
<td>0.73**</td>
<td></td>
</tr>
<tr>
<td>Neutral (N)</td>
<td>0.14*</td>
<td>0.12*</td>
<td>0.06*</td>
<td>0.14*</td>
<td>0.12*</td>
<td>0.22*</td>
</tr>
</tbody>
</table>

* Sig at 0.05 level
** Sig at 0.01 level
4. **Academic Achievement**

Academic achievement of students was measured by their final examination scores in the class X.

5. **Family Environment Scale (Bhatia and Chadha, 1993)**

Scale developed by Bhatia and Chadha was used to measure the family environment in the present investigation.

This family environment scale is based on the family environment scale by Moos and Moos (1974). This scale consists of three dimensions which are taken from Moos's scale. These three dimensions have 8 sub-dimensions.

**A) Relationship Dimensions**

Relationship dimensions are measured by:

1. **Cohesion**
   
   Degree of commitment, help and support family members provide for one another.

2. **Expressiveness**
   
   Extent to which family members are encouraged to act openly and express their feelings and thoughts directly.

3. **Conflict**
   
   Amount of openly expressed aggression and conflict among family members.

4. **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**

The personal growth dimensions are measured by:

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

6. **Active-Recreational Orientation**
   
   Extent of participation in social and recreational activities.
C) **System Maintenance Dimensions**

The system maintenance dimensions are measured by:

7. **Organization**

Degree of importance of clear organization structure in planning family activities and responsibilities.

8. **Control**

Degree of limit setting within a family.

**Number of Items Against Each Aspect of Family Environment**

<table>
<thead>
<tr>
<th>Sub Scales</th>
<th>Positive Items</th>
<th>Negative Items</th>
<th>No. of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Cohesion</td>
<td>1,9,24,37,43,55,60,63,66,69</td>
<td>7,49,31</td>
<td>13</td>
</tr>
<tr>
<td>B. Expressiveness</td>
<td>10,25,38,44,56</td>
<td>2,18,32,50</td>
<td>9</td>
</tr>
<tr>
<td>C. Conflict</td>
<td>11,19,39,51,61,67</td>
<td>2,26,33,45,57,64</td>
<td>12</td>
</tr>
<tr>
<td>D. 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>E. Independence</td>
<td>4,27,46,52</td>
<td>12,20,34,40,58</td>
<td>9</td>
</tr>
<tr>
<td>F. Active Recreational Orientation</td>
<td>5,13,21,28,47</td>
<td>35,41,53</td>
<td>8</td>
</tr>
<tr>
<td>G. Organization</td>
<td>14</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>H. Control</td>
<td>7,22</td>
<td>15,29</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>69</strong></td>
</tr>
</tbody>
</table>

**Scoring**

In the family environment scale, each item was scored as a scale 5 to 1 i.e. the scale from strongly agree to strongly disagree. Subjects were asked to respond to the items by marking any one of the five response options: strongly agree, agree, neutral, disagree, strongly disagree. The scoring procedure of the item was rated by the item scores of the scale. In the present study, total score of family environment scale was taken. On the basis of total score, the subject was divided into high, average and low score group.

The scoring procedure of positive and negative items is presented below:

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

Split-half reliability was found for the present scale. For this purpose, the present scale was split into two halves. The scores of each dimension was also split into two halves. The scores for each of these halves were then correlated. From this self-correlation of the half-tests, the reliability coefficient of the whole test was estimated using the Spearman-Brown formula. The reliability coefficients thus obtained were as follows:

**Reliability Coefficients**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Sub Scales</th>
<th>Reliability Coefficient</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>0.84</td>
</tr>
<tr>
<td>4.</td>
<td>Acceptance and Caring</td>
<td>0.86</td>
</tr>
<tr>
<td>5.</td>
<td>Independence</td>
<td>0.70</td>
</tr>
<tr>
<td>6.</td>
<td>Active-Recreational Orientation</td>
<td>0.48</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>
<tr>
<td></td>
<td>Overall Reliability Coefficient</td>
<td>0.95</td>
</tr>
</tbody>
</table>

Validity

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% agreement among the judges were retained. For content validity the dimensions of family environment were selected and clearly defined for the purpose of measuring the specific aspects of the environment. These dimensions were also subjected to the judgement of the eight experts in the first step, and five experts in the second step.

**ADMINISTRATION OF TESTS AND DATA COLLECTION**

The data for the present study were collected personally by the investigator herself. The students were approached through the heads of the institutions. The permission of the concerned head of the institution was sought and timings were fixed with teachers-in-charge.
As the tests were lengthy, it was not possible to administer all of them together. Therefore, the tests were administered in two phases spread over a period of 5 to 6 days in each school.

In the first phase career maturity inventory was administered. This was followed by General Mental Ability Test, Self-Concept List and Family Environment Scale in the second phase.

The purpose of the visit was explained to students. They were also assured that the information received from them would be used only for research purpose. All possible efforts were made to make the students feel at ease. After establishing a good rapport, the respondents were given booklets and answer sheets, the instructions were read aloud and explained to the students, as per manual for each test.

The investigator was present there all the time to answer the queries, to satisfy the curiosity of respondents and to motivate them to answer the questionnaire carefully. All efforts were made to get maximum co-operation of the students. After completing one test, the answer sheets and booklets were collected and the next test was given to the students with sufficient gap. Similarly all the tests were completed.

STATISTICAL TECHNIQUES

To arrive at certain conclusions, regarding the hypotheses advanced in the present investigation, the following statistical analysis of data were employed:

1. **Descriptive Analysis**

   Measure of central tendency such as means, standard deviations, skewness and kurtosis were worked out to study the nature and distribution of scores on various variables.

2. **Differential Analysis**

   The t-test were employed:

   (i) To compare the academic and vocational groups on the variables of career maturity, intelligence, self-concept, academic achievement and family environment.
(ii) To make comparisons among adolescents from science, commerce, arts and vocational groups on the variables of career maturity, intelligence, self-concept, academic achievement and family environment.

(iii) To compare boys and girls on the variables of career maturity, intelligence, self-concept, academic achievement and family environment.

(iv) To make comparisons among adolescents from rural and urban schools on the variables of career maturity, intelligence, self-concept, academic achievement and family environment.

3. **Bivariate Analysis**

Product moment coefficients of correlation were worked out to obtain the relationship between the criterion variable of career maturity and the independent variables of intelligence, self-concept, academic achievement and family environment in adolescents.

4. **Factor Analysis**

Principal axis method of factoring and Varimax rotation of factors was employed to study the factor structure of variable and to see how the variables contribute to the variable.

(All calculations were done using SPSS program)

Hence, with the help of above mentioned statistical techniques, the investigator could verify the hypotheses framed in first chapter and draw some conclusions.