CHAPTER 4

METHOD AND PROCEDURE

4.1. Design of the Study

As seen in the Introduction, the present study has been undertaken with the objective of investigating the contribution of personality needs, mental maturity and university environment to the academic achievement of the university students in Iran. Furthermore one of the objectives of the present research was to examine sex differences, if any, in the academic achievement and all other variables under study of the university students as well as to see whether there are differences in academic achievement of the university students and other variables under study on the basis of area of study i.e. science versus arts students. Also another objective of the present research was to find out the conjoint contribution of the independent variables of personality needs, mental maturity and university environment to the academic achievement of university students. Keeping in mind the said objectives, the design of the study involved the selection of a sample of 150 girl students and 150 boy students. Furthermore 75 girl students were selected from amongst the arts students and 75 from amongst the science students. The same combination applies to the boy students. It involved finding out the differences between the boy students and girl students and the arts and science students. The techniques used to determine these included: descriptive statistics, inter-variable correlations, ‘t’-test for significance of differences, and step-wise multiple correlational and regression analysis that have been done for the analysis of the data.

The study is a descriptive, analytical survey research. It is survey since it aims at studying the nature and the present status of the variables under study as they are. It also involved comparative approach across the variables of sex and areas of study for the purpose of differential analysis. It consisted of correlational relationship analysis studying the association of variables being investigated using bi-variate analysis. It also consisted of multiple correlational and regression analysis to find out the contribution of independent variables to
the dependent variable and also to ascertain which of the independent variables individually or conjointly were predictors of academic achievement.

4.2. Selection of the Sample and Sampling Technique

A total of 300 students constitute the sample of the study, all of whom are Iranian students from universities located in Tehran.

The technique of stratified sampling has been employed for the selection of the students from the departments of the universities located in Tehran and from different disciplines. Since one of the objectives of the present study was to study the sample sex-wise, hence 150 girl students and 150 boy students were selected for the total sample. Also the second objective of the present study was to study the sample subject-wise, 150 students were selected from the arts courses and 150 from science courses. It is pertinent here to mention that out of 150 girl students, 75 were selected from the arts courses and 75 from science disciplines. Likewise 75 boy students were selected from the arts courses and 75 from the science disciplines.

4.3. Selection of Tools for the Study

4.3.1. Academic Achievement

For academic achievement, the previous year’s scores have been taken up and their averages computed. Every respondent was asked to write the previous year’s average on a box specified on the response sheets of the Edwards Personal Preference Schedule, Mental Maturity and University Environment Scale. It is pertinent here to mention that maximum mark for every subject is 20 in Iran and the minimum pass mark is 10. Therefore the mean scores of the academic achievement have been calculated on the basis of the said criteria.

4.3.2. Edwards Personal Preference Schedule (Revised Form 1959)

Introduction

The Edwards Personal Preference Schedule (EPPS) was designed primarily as an instrument for research and counseling purposes, to provide quick and convenient measures of a number of relatively independent normal personality variables. The statements in the EPPS and the variables that these statements purport to measure have their origin in a list of manifest needs
presented by H. A. Murray and others. The names that have been assigned to the variables are those used by Murray.

The EPPS provides measures of 15 personality variables. In addition to the above 15 personality variables, the EPPS provides a measure of test consistency as well. The personality variables, as given in the manual, are described in the following paragraphs.

4.3.2.1. Description of the Personality Variables

A brief description of each personality variable is given in the following paragraphs. These descriptions are based upon the statements in the EPPS relating to each of the variables, although they do not follow the exact wording of the statements. It may be borne in mind that the higher the score on a particular variable, the more often the subject has chosen the statements for this variable as being descriptive of himself in preference to the statements for the other variables. And the lower the score on a particular variable, the less often the subject has chosen the statements for this variable as being descriptive of himself in preference to the statements for the other variables.

The manifest needs associated with each of the 15 EPPS variables are:

1. **Achievement (ach):** To do one's best, to be successful, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better, than others, to write a great novel or play.

2. **Deference (def):** To get suggestions from others, to find out what others think, to follow instructions and do what is expected, to praise others, to tell others that they have done a good job, to accept the leadership of others, to read about great men, to conform to custom and avoid the unconventional, to let others make decisions.

3. **Order (ord):** To have written work neat and organized, to make plans before starting on a difficult task have things organized, to keep things neat and orderly, to make advance plans when taking a trip, to organize details of work, to keep letters and files according to some system, to have meals organized and a definite time for eating, to have things arranged so that they run smoothly without change.
4. **Exhibition (exh):** To say witty and clever things, to tell amusing jokes and stories, to talk about personal adventures and experiences, to have others notice and comment upon one's appearance, to say things just to see what effect it will have on others, to talk about personal achievements, to be the center of attention, to use words that others do not know the meaning of, to ask questions others cannot answer.

5. **Autonomy (aut):** To be able to come and go as desired, to say what one thinks about things, to be independent of others in making decisions, to feel free to do what one wants, to do things that are unconventional, to avoid situations where one is expected to conform, to do things without regard to what others may think, to criticize those in positions of authority, to avoid responsibilities and obligations.

6. **Affiliation (aff):** To be loyal to friends, to participate in friendly groups, to do things for friends, to form new friendships, to make as many friends as possible, to share things with friends, to do things with friends rather than alone, to form strong attachments, to write letters to friends.

7. **Interception (int):** To analyze one's motives and feelings, to observe others, to understand how others feel about problems, to put one's self in another's place, to judge people by why they do things rather than by what they do, to analyze the behavior of others, to analyze the motives of others, to predict how others will act.

8. **Succorance (suc):** To have others provide help when in trouble, to seek encouragement from others, to have others be kindly, to have others be sympathetic and understanding about personal problems, to receive a great deal of affection from others, to have others do favors cheerfully, to be helped by others when depressed, to have others feel sorry when one is sick, to have a fuss made over one when hurt.

9. **Dominance (dom):** To argue for one's point of view, to be a leader in groups to which one belongs, to be regarded by others as a leader, 'to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence others to do what one wants, to supervise and direct the actions of others, to tell others how to do their jobs.
10. **Abasement (aba)**: To feel guilty when one does something wrong, to accept blame when things do not go right, to feel that personal pain and misery suffered does more good than harm, to feel the need for punishment for wrong doing, to feel better when giving in and avoiding a fight than when having one's own way, to feel the need for confession of errors, to feel depressed by inability to handle situations, to feel timid in the presence of superiors, to feel inferior to others in most respects.

11. **Nurturance (nur)**: To help friends when they are in trouble, to assist others less fortunate, to treat others with kindness and sympathy, to forgive others, to do small favors for others, to be generous with others, to sympathize with others who are hurt or sick, to show a great deal of affection toward others, to have others confide in one about personal problems.

12. **Change (chg)**: To do new and different things, to travel, to meet new people, to experience novelty and change in daily routine, to experiment and try new things, to eat in new and different places, to try new and different jobs, to move about the country and live in different places, to participate in new fads and fashions.

13. **Endurance (end)**: To keep at a job until it is finished, to complete any job undertaken, to work hard at a task, to keep at a puzzle or problem until it is solved, to work at a single job before taking on others, to stay up late working in order to get a job done, to put in long hours of work without distraction, to stick at a problem even though it may seem as if no progress is being made, to avoid being interrupted while at work.

14. **Heterosexuality (het)**: To go out with members of the opposite sex, to engage in social activities with the opposite sex, to be in love with someone of the opposite sex to kiss those of the opposite sex, to be regarded as physically attractive by those of the opposite sex, to participate in discussions about sex, to read books and plays involving sex, to listen to or to tell jokes involving sex, to become sexually excited.

15. **Aggression (agg)**: To attack contrary points of view, to tell others what one thinks about them, to criticize others publicly, to make fun of others, to tell others off when disagreeing with them; to get revenge for insults, to become angry, to blame others when things go wrong, to read newspaper accounts of violence.
4.3.2.2. Suggested Uses of the EPPS

4.3.2.2.1. Counseling and Guidance

Approximately two hundred individuals seeking vocational or educational guidance or assistance with personal problems had been given the EPPS prior to the first edition of this Manual (1954). These individuals were all clients of the Counseling Center of the University of Washington and consisted of both college students and those who had no college education. The testing and interviewing were done by Dr. Louise B. Heathers and her staff at the Counseling Center. This section of the Manual has been written by Dr. Heathers and is based upon her experience and that of her staff in using the EPPS in counseling and guidance work.

4.3.2.2.2. Classroom Demonstration

The EPPS has been given to college classes in general and applied psychology, individual differences, social psychology, personality, and tests and measurements. It provides an introduction to a discussion of the measurement of personality variables and the associated problems of reliability, validity, and social desirability. It also provides a basis for discussing various aspects of personality theory and individual differences.

In general students appear to be much interested in taking the EPPS and in subsequent discussions of their scores. Because of the nature of the variables measured by the EPPS, there is usually no problem involved in permitting students to see their scores.

4.3.2.2.3. Research

One of the objectives in the development of the EPPS was to make available an instrument that would prove to be useful in psychological research. A number of research problems involving the use of the EPPS have been completed and are included in the bibliography of schedule.

4.4. Reliability

Split-half reliability coefficients or coefficients of internal consistency were determined for the 15 personality variables. These coefficients were obtained by correlating the row and column scores for each variable over the 1509 subjects in the college normative group. The internal consistency
coefficients, corrected by the Spearman-Brown formula, are given in Table 4.1. Test-retest reliability coefficients or stability coefficients are also given in Table 4.1. These coefficients are based upon the records of a group of 89 students at the University of Washington who took the EPPS twice with a one-week interval separating the two administrations.

**Table 4.1**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Internal Consistency</th>
<th>Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$r_{11}$</td>
<td>$r_{11}$</td>
</tr>
<tr>
<td>1. Achievement</td>
<td>.74</td>
<td>.74</td>
</tr>
<tr>
<td>2. Deference</td>
<td>.60</td>
<td>.78</td>
</tr>
<tr>
<td>3. Order</td>
<td>.74</td>
<td>.87</td>
</tr>
<tr>
<td>4. Exhibition</td>
<td>.61</td>
<td>.74</td>
</tr>
<tr>
<td>5. Autonomy</td>
<td>.76</td>
<td>.83</td>
</tr>
<tr>
<td>6. Affiliation</td>
<td>.70</td>
<td>.77</td>
</tr>
<tr>
<td>7. Interception</td>
<td>.79</td>
<td>.86</td>
</tr>
<tr>
<td>8. Succorance</td>
<td>.76</td>
<td>.78</td>
</tr>
<tr>
<td>9. Dominance</td>
<td>.81</td>
<td>.87</td>
</tr>
<tr>
<td>10. Abasement</td>
<td>.84</td>
<td>.88</td>
</tr>
<tr>
<td>11. Nurturance</td>
<td>.78</td>
<td>.79</td>
</tr>
<tr>
<td>12. Change</td>
<td>.79</td>
<td>.83</td>
</tr>
<tr>
<td>13. Endurance</td>
<td>.81</td>
<td>.86</td>
</tr>
<tr>
<td>14. Heterosexuality</td>
<td>.87</td>
<td>.85</td>
</tr>
<tr>
<td>15. Aggression</td>
<td>.84</td>
<td>.78</td>
</tr>
<tr>
<td>Consistency Score</td>
<td>.78</td>
<td>11.59</td>
</tr>
<tr>
<td>N</td>
<td>1509</td>
<td>89</td>
</tr>
</tbody>
</table>

4.5. **Validity**

4.5.1. **Ratings**

The validity of a test or of an inventory is frequently defined as “the extent to which the test or inventory actually measures what it purports to
measures.” If this definition were accepted at face value, the determination of the validity of an inventory would involve the correlation between scores on the inventory and some “pure criterion measure” of what the inventory purports to measure. Such pure criterion measures are, of course, generally not available. As a result, self-ratings ratings by peers have frequently been substituted for the pure criterion measures.

Among other things, the degree of correlation found between ratings and scores on personality inventories is a function of a) the manner in which the variable being rated is defined, b) the degree of complexity of the variable being rated, c) the amount of insight, knowledge, and ability of the subjects doing the ratings, and d) the extent to which the individual doing the ratings is influenced by standards of social desirability.

Various studies have been made comparing ratings and scores on the variables of the EPPS. In one study, subjects were asked to rank themselves on the fifteen personality variables without knowledge of their corresponding scores on the EPPS. Definitions of the variables were provided in terms of the statements appearing in the EPPS. This was necessary because it was believed that the names of some of the more familiar variables, such as Dominance, would probably evoke many different connotations, whereas the names of some of the more unfamiliar variables, such as Interception, would probably have little meaning for the subjects.

The self-rankings of some subjects agreed perfectly with their rankings based upon the EPPS. In other cases, the two sets of rankings showed little agreement. The subjects, in general, reported the self-rankings difficult to make. Some complained of being unable to evaluate the individual statements in order to obtain a single ranking. Others placed undue stress upon a single statement involved in the definition of a variable and neglected the remaining statements. Some of the subjects also undoubtedly tended to evaluate the variables in terms of standards of social desirability.

In another study the statements appearing in the EPPS were printed on individual cards and the subjects were asked to do Q sorts of themselves following Stephenson’s instructions. These self-ratings were correlated with
scores on the EPPS for each subject. The results were comparable to those reported above, i.e., some subjects showed a high degree of agreement and others little or no agreement between their self-ratings and scores. There was a definite tendency on the part of some subjects doing the Q sorts to regard the statements with the higher social desirability scale values as being most characteristic of themselves and those with low social desirability scale values as being least characteristic. For these subjects the correlations between self-ratings and EPPS scores are quite low. Social desirability as a factor influencing Q sorts is discussed in detail by Edwards and Horst.

It is believed that studies such as the ones described above between self-ratings and scores on an inventory can do little more than establish agreement, or lack of it, between the ratings of a particular subject and his scores on the inventory. The interpretation to be placed upon this agreement, or lack of it, is another matter and one involving many difficult and complex problems. It is not clear, however, how even perfect agreement between self-ratings and inventory scores could be interpreted as bearing upon the nature of the variables being measured by the inventory.

A similar conclusion can be made concerning studies of peer ratings and scores on an inventory. Some men may live with their wives for years and still be unable to predict how their wives will answer the items in a personality inventory. Others may be quite successful in making such predictions. It may be of interest to study the characteristics of successful and unsuccessful predictors, but it is difficult to see how either successful or unsuccessful predictions of this kind would add anything to an understanding of the variables purportedly being measured by the inventory.

4.6. Modified Alpha Examination Form 9

Designed by The Psychological Corporation, New York, in 1949 and revised in 1968, the Modified Alpha Examination Form 9 is a new revision of the Army Alpha Examinations in which the practical judgment test, the least effective verbal test, has been replaced by a numerical test, and antiquated items have been revised. There are eight subtests – both numerical and verbal – that are arranged so that separate numerical and verbal scores can be obtained.
The norms of test are based on a nationwide study of more than five thousand high school boys and about six thousand high school girls.

The purpose of this test is to see how well the students remember, think, and carry out what they are asked to do. Some of the things they are asked to do may be very easy; some may be very difficult. They are not expected to make a perfect grade on every test, nor to finish all the questions. They should simply do the best they can in the time allowed.

4.6.1. Reliability

Because of the nature of the test items in the Modified Alpha Examination Form 9, test-retest reliability coefficients were not obtained. Since this Examination is highly speedy, reliability coefficients computed by the split-half method would be spuriously high, and therefore inappropriate.

Correlations with the Revised Alpha Examination Form 5 and Form 7 (that have been found equivalent) yield the reliability estimates shown in Table 4.2.

<table>
<thead>
<tr>
<th>Table 4.2</th>
<th>Reliability of Modified Alpha Examination Form 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects</td>
<td>‘t’</td>
</tr>
<tr>
<td>Form 5</td>
<td></td>
</tr>
<tr>
<td>142 girls</td>
<td>.90</td>
</tr>
<tr>
<td>141 boys</td>
<td>.87</td>
</tr>
<tr>
<td>Form 7</td>
<td></td>
</tr>
<tr>
<td>168 girls</td>
<td>.91</td>
</tr>
<tr>
<td>157 boys</td>
<td>.92</td>
</tr>
</tbody>
</table>

4.7. University Environment Scale

Designed and standardized by Sinha (1971), the University Environment Scale has been used for the study of university environment. It is based on an empirical approach to the views and reactions of the students to the campus climate.

Sinha (1971), as has been mentioned already, adopting an empirical approach, made 50 Patna University students write behavior descriptions and practices pertaining to various aspects of the campus life which related to university administration, teacher — student relation ships, methods of
teaching and the present examination system; academic and para-academic activities and any other behavior and practices observed amongst the students. After editing of the hundreds of responses obtained, 56 were selected and administered to a sample of 212 college students drawn from all the six years of college in Patna. Factor analysis yielded five usable factors, which were as follows.

- **Normlessness:** This factor relates to all decisions being made in the University by the groups or cliques formed on partisan and discriminatory basis.

- **Absence of Conformity:** Named initially as conformity, this factor, it was felt should more appropriately be called as ‘lack of conformity’ since all the items had negative loadings on this. This meant that higher scores on this factor meant deviation from the conformity behavior. The items which had higher factor loadings indicated this tendency. The examples of this are: ‘Students these days take pride in insulting their teachers’, ‘Many girls imitate film stars’ and the like.

- **Need for Nurturance:** Nurturance means care and protection and need for the same implies students’ expectation of teachers’ catering to their needs for support and guidance. But since this factor also had all but one negative loadings, it means that the absence of care and protection generates a feeling of helplessness in the students. Majority of the items which had high factor loadings were related with the same, according to Sinha.

- **Adoption of Unfair Means:** As is clear from the factor name, it means the use of practices which are not correct and desirable for getting the needs and the desired ends met. The examples are 1. ‘Students are promoted on the basis of personal connections.’ 2. ‘Students are not interested in study; they just want to get promoted.’ Anyhow, Sinha has made it clear that come items which do not seem to relate to the above heading are also indirectly related. Example number 2 illustrates this since what is stated herein is the fact that although students don’t feel interested in studies, they want to get promoted by unfair means.
- **Morality**: The last and the fifth factor in this scale is morality which relates to the crumbling of values specially the old ones like respect for teachers, modesty in female sex and misleading of students by the students themselves, specially those who are in leadership roles and occupy positions of authority in the student unions.

### 4.7.1. Reliability

The reliability measures for the five factors appear in Table 4.3.

#### Table 4.3

<table>
<thead>
<tr>
<th>Factors</th>
<th>Name of the Factor</th>
<th>Reliability Co-efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Normlessness</td>
<td>.82</td>
</tr>
<tr>
<td>2.</td>
<td>Conformity</td>
<td>.73</td>
</tr>
<tr>
<td>3.</td>
<td>Nurturance</td>
<td>.78</td>
</tr>
<tr>
<td>4.</td>
<td>Unfair means</td>
<td>.78</td>
</tr>
<tr>
<td>5.</td>
<td>Morality</td>
<td>.72</td>
</tr>
</tbody>
</table>

As for scoring, the items are to be scored on Likert type 5 point scale ranging from strong agreement through uncertain to strong disagreement.

The original scale had 56 items. Some of the items did not seem applicable to the campus atmosphere in the Iranian society taken up for the present study. An example of this is: 'Caste considerations do not figure in any way among the students or teachers'. Further some of the items in the scale relate to college and situations prevalent in the college. Also the items like 'The new teachers are not able to teach in English,' are not applicable, because the medium of instruction is Persian in almost all the Iranian universities. These items were therefore dropped and a shorter scale used instead. To validate the use of this scale, the original and the shorter scales were administered to a group of eighty students and their reliability coefficient computed. The obtained value of correlation of .71 justifies the use of the smaller scale.
4.8. Procedure and Administration of the Scales

Since the scales were in English and most of the respondents did not have a command of English, in the first place the questionnaires were translated into Persian with the consultation of some teachers in the Department of Education and Department of English of the University of Tehran. Since the scales were not group tests, a batch of two questionnaires related to the two scales of Edward Personal Preference Test and the Sinha University Environment Scale were given to the same student each time. Since the intention was to collect a representative sample, the students were contacted both in the hostels and at the campuses of the related universities to fill up the questionnaires. The study includes a sample of 300 university students from different universities located in Tehran which include the University of Tehran, The Beheshti University, Shahed University, Amir Kabir University, Sharif University, Tarbiyat Moradress University, Islamic Azad University and Tarbiyat Mo’alem University.

The necessary explanation was given to the students in order to properly fill up both the questionnaires properly. Since our dependent variable, academic achievement, had to be measured on the basis of the previous year’s final examination aggregates, all the students were asked to fill up the box envisaged for the aggregates of their previous examinations on the side of other information they had to provide such as sex, course of study, university, etc.

After all the questionnaires were got filled up, they were sorted out and arranged on the basis of the sex and area of study of the respondents.

After the administration of the scales, the response sheets of the Edward Personal Preference were hand scored with the key available for the purpose and then analyzed by the computer. The response sheets of the Sinha University Environment and Modified Alpha Examination Form 9 were directly given to the personal computer and after the preparation of the raw data of these scales, the entire data of both the questionnaires were analyzed by computer at the Center for Data Processing of Iran, Tehran. Also the SPSS was used for processing of some of the data as far as possible.
4.9. Statistical Techniques

For the analysis of the data, descriptive statistics, including mean scores and standard deviations, Skewness and Kurtosis have been employed. To find out how the independent variables are associated with the academic achievement, bivariate analysis has been done with the employment of inter-variable correlations and 't'-test for significance of differences. Also multivariate analysis has been done with the help of step-wise multiple regression analysis to find out the level of contribution of independent variables to the dependant variable academic achievement and also to find out whether the independent variables are predictors of academic achievement of the university students.