CHAPTER IV

METHODS OF INVESTIGATION
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This chapter deals with various procedures followed in the construction of data gathering instruments to measure the different variables, included in the present investigation. A brief description of methods adopted in the selection of the sample, collection of data, scoring, analysis and statistical techniques employed, are presented here under.

4.1 METHOD OF INVESTIGATION

The following tools were used in the present study to measure the different variables are shown here:

1. **Academic Achievement**

   To measure the academic achievement of D.Ed. students belonging to 2008 – 2010 batch second year students, the D.Ed. annual examinations theory marks of both first year (July, 2009) and second year (July, 2010) were taken as the indices of the academic achievement from the records of the colleges.

2. **Self - Efficacy Scale (SES)**

   To measure the self-efficacy of the students, the self-efficacy scale (SES) developed by Copeland and Nelson (2004) was adopted and it is worth using for the present investigation.

3. **Emotional Intelligence Scale (EIS)**

   To measure the emotional intelligence of the students, emotional intelligence scale (EIS) developed by Bar – On (1997) was adopted and it is more suitable for the purpose of present study.

4. **Achievement Motivation Scale (AMS)**

   To measure the achievement motivation of the students, achievement motivation scale (AMS) developed by Pratibha Deo and Asha Mohan (1985) was adopted and it is more suitable for the purpose of present study.
5. **Socio - Demographic Variables (SDV)**

Personal data sheet has developed by the investigator to measure the socio-demographic variables.

4.1.1 **ACADEMIC ACHIEVEMENT**

To measure the academic achievement of D.Ed. students belonging to 2008 - 2010 batch second year students, the D.Ed. annual examinations theory marks of both first year (July, 2009) and second year (July, 2010) were taken as the indices of the academic achievement from the records of the colleges.

4.1.2 **SELF - EFFICACY**

Self-efficacy is belief in one's capability to organize and execute the course of action required to manage prospective situation. It is concerned with individual's perceived capabilities to produce results and to attain designated types of performance. Self-efficacy judgments are both task and situation-specific, contextual. individual makes use of these judgments in reference to some type of goal.

Self-efficacy beliefs develop from various sources like mastery experience, verbal persuasions, vicarious experiences etc. physiological states such as anxiety, stress, arousal, fatigue and mood states also provide information about efficacy beliefs.

It is important to restate that these sources of efficacy information are not directly translated into judgments of competence. Individuals interpret the results of events, and these interpretations provide the information on which judgments are based. The types of information people attend to and use to make efficacy judgments, and the rules they employ for weighting and integrating them, form the basis for such interpretations. Thus, the selection, integration, interpretation, and recollection of information influence judgments of self-efficacy.

Self-efficacy beliefs influence motivational and self-regulatory process in several ways. They influence the choices people make and the courses of action they pursue. Strong self-efficacy beliefs enhance human accomplishment and personal well-being in many ways. People with a strong sense of personal competence in a domain approach difficult tasks in that domain as challenges to be mastered rather than as dangers to be avoided, have greater intrinsic interest in activities, set
challenging goals and maintain a strong commitment to them, heighten their efforts in the face of failure, more easily recover their confidence after failures or setbacks and attribute failure to insufficient effort or deficient knowledge and skills which they believe they are capable of acquiring. High self-efficacy helps create feelings of serenity in approaching difficult tasks and activities. Conversely, people with low self-efficacy may believe that things are tougher than they really are, a belief that fosters stress, depression, and a narrow vision of how best to solve a problem. As a result of these influence, self-efficacy beliefs are strong determinants and predictors of the level of accomplishment that individuals finally attain.

Students confident in their academic skills expect high marks on exams and expect the quality of their work to reap benefits. The opposite is also true of those who lack such confidence. Students who doubt their academic ability envision low marks before they begin an exam. The expected results of these imagined performances will be differently envisioned continued good grades and academic success for the former, curtailed possibilities and academic failure for the latter.

The socially anxious man confronted with the decision of whether to attend the party envisions disastrous outcomes largely because he has little confidence in his capabilities to meet the demands associated with parties. These beliefs vary in level, strength, and generality and these dimensions prove important in determining appropriate measurements.

Measurement of self-efficacy

Self-efficacy beliefs should be measured in terms of particularized judgments of capability that may vary across realms of activity, different levels of task demands within a given activity, domain, and under different situational circumstances.

The researcher has selected the Self-Efficacy Scale (SES) standardized and prepared by Copeland and Nelson (2004) was adopted and it is worth using for the present investigation.

Self-efficacy scale consists of sixteen statements with four options (very low, low, high and very high). The student has to go through the statement and give one response of his choice.
Scoring of self-efficacy

It consists of sixteen statements. There are four alternative responses. These responses were numbered 1 to 4 (very low, low, high and very high). The minimum and maximum possible scores on self-efficacy scale ranges from 16 – 64. Low score indicates low self-efficacy and high score indicates high self-efficacy. The reliability of the scale was established by using test – retest method and it is found to be 0.77 and validity of the scale computed is 0.88. The numerical values for positive and negative statements are given in Table – 1.

Table – 1

<table>
<thead>
<tr>
<th>Item</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very low(VL)</td>
</tr>
<tr>
<td>Positive</td>
<td>1</td>
</tr>
<tr>
<td>Negative</td>
<td>4</td>
</tr>
</tbody>
</table>

There are 14 positive statements and 2 negative statements. Item number 1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 13, 14, 15 and 16 are positive statements and the negative statements are 7 and 10.

Reliability and Validity

The reliability of the self-efficacy questionnaire was established by using test-retest method. The researcher has selected 50 D.Ed. students and administered the self-efficacy questionnaire to them. Again after one month the same questionnaire was given to the same D.Ed. students and test was administered. Then reliability and validity was found to be 0.77 and 0.88. This value shows that this scale is suitable for our condition. The same scale is translated in to Telugu by the researcher with the help of research supervisor.

A copy of the Telugu version of self – efficacy scale is presented in the Appendix – A. A copy of the English version of self – efficacy scale is presented in Appendix – B. A copy of the answer sheet of self – efficacy scale is presented in Appendix – C.
4.1.3 EMOTIONAL INTELLIGENCE

Emotional Quotient (EQ) is used interchangeable with "Emotional Intelligence" in simple terms this can be defined as knowing that feels good, what feels bad and how to get from bad to good. A more formal academic definition refresh to emotional awareness and emotional management skills which provides the ability to balance between emotion and reason so as to maximize long term happiness. Emotional intelligence includes components like self awareness, ability to manage moods, motivation, empathy and social skills such as cooperation and leadership. It is believed that learning difficulties as well as various problems of adjustment at the work place have their origin in poorly developed emotional awareness in early childhood. Emotions enable human beings to respond appropriately to a variety of environmental situation.

Significance of emotional intelligence to everyday life:

This section will focus on how emotional intelligence has been applied in various settings. First, research on the gender differences in emotional intelligence will be outlined in an effort to examine if the application of emotional intelligence to; different settings varies as a function of gender. Second, the application of emotional intelligence to everyday living will is explored. Finally the applicability of E.I to the work place will be discussing on the economic value of higher emotional intelligence in the work place, the success rate of those high in E.I relative to others and various avenues for training of E.I competencies.

Measurement of emotional intelligence

The researcher has selected the emotional intelligence scale standardized and prepared by (EIS) Bar – On (1997) was adopted and it is more suitable for the purpose of present study.

Emotional intelligence scale consists of thirty statements with four options (very low, low, high and very high). The student has to go through the statement and give one response of his choice.
Scoring of emotional intelligence scale

It consists of thirty statements. There are four alternative responses. These responses were numbered 1 to 4 (very low, low, high and very high). The minimum and maximum possible scores on emotional intelligence scale range from 30 – 120. Low score indicates low emotional intelligence and high score indicates high emotional intelligence. The reliability of the scale was established by using test – retest method and it is found to be 0.89 and validity of the scale computed is 0.94. The numerical values for positive and negative statements are given in Table – 2.

Table – 2

The numerical values for positive and negative statements

<table>
<thead>
<tr>
<th>Item</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very low(VL)</td>
</tr>
<tr>
<td>Positive</td>
<td>1</td>
</tr>
<tr>
<td>Negative</td>
<td>4</td>
</tr>
</tbody>
</table>

There are 25 positive statements and 5 negative statements. Item number 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 22, 23, 24, 25, 27, 29 and 30 are positive statements and the negative statements are 6, 15, 21, 26 and 28.

Reliability and validity

The reliability of the emotional intelligence scale was established by using test-retest method. The researcher has selected 50 D.Ed. students and administered the emotional intelligence scale to them. Again after one month the same questionnaire was given to the same D.Ed. students and test was administered. Then reliability and validity was found to be 0.89 and 0.94. This value shows that this scale is suitable for our condition. The same scale is translated in to Telugu by the researcher with the help of research supervisor.

A copy of the Telugu version of emotional intelligence scale is presented in the Appendix – D.

A copy of the English version of emotional intelligence scale is presented in Appendix – E.

A copy of the answer sheet of emotional intelligence scale is presented in Appendix – F.
4.1.4 ACHIEVEMENT MOTIVATION

Achievement motive has a more significant influence on the success or failure of an academic success than any other motive we know about, such as, the competence motive, (White 1959), the affiliation motive (Schacter, 1959), etc. Everyone has an achievement motive to some extent, but some people are consistently more oriented toward achievement than others. Perhaps the most important aspect of a really strong achievement motive is that he tries harder. Most of the people will put more effort into their work if they are challenged to do better if some valid reason for exertion is pointed out to them. But the achievement motivated person is likely to outstrip all others in his zeal to improve his performance when he is challenged to do so. He tries harder and demands more of himself, especially when the chips are down. Consequently he accomplishes more. Mc. Clelland (1959), on administration of his theory on executives found that the higher the level of achievement motivation, the more likely is the executive to rise to positions of greater power, and responsibility.

Investigation of need achievement has been undertaken by three methods, Vis., direct objective methods, situational tests and projective measures.

1. Direct measures utilize direct questioning, inventories, multiple choice type items, etc.

2. Ratings of behaviour in a situation have also been used to measure motivation.

3. Projective measurements are based on the assumption that the fantasies of an individual are as much a part of 'operant' behaviour as any other behaviour and therefore, the needs and motives of a person are reflected in the fantasies of the individual. A number of projective and semi projective tests have been developed to assess the need for achievement.

Measurement of achievement motivation scale

The tool designed by Pratibha Deo and Asha Mohan in 1985 was used to assess achievement motivation. This consists of 50 items. Five alternative responses have been given to each statement i.e., always, frequently, some times, rarely and never.
Achievement motivation scale consists of fifty statements with five options (always, frequently, some times, rarely and never). The student has to go through the statement and give one response of his choice.

**Scoring of achievement motivation scale**

It consists of fifty statements. There are five alternative responses. These responses were numbered 1 to 5 (always, frequently, some times, rarely and never). The minimum and maximum possible scores on achievement motivation scale range from 50 – 200. Low score indicates low achievement motivation and high score indicates high achievement motivation. The reliability of the scale was established by using test – retest method and it is found to be 0.73 and validity of the scale computed is 0.85. The numerical values for positive and negative statements are given in Table – 3.

**Table – 3**

The numerical values for positive and negative statements

<table>
<thead>
<tr>
<th>Item</th>
<th>Alternatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Always (A)</td>
</tr>
<tr>
<td>Positive</td>
<td>4</td>
</tr>
<tr>
<td>Negative</td>
<td>0</td>
</tr>
</tbody>
</table>

There are 37 positive statements and 13 negative statements. Item number 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 16, 23, 24, 26, 27, 28, 29, 30, 31, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49 and 50 are positive statements and the negative statements are 1, 12, 13, 14, 17, 18, 19, 20, 21, 22, 25, 32 and 34.

**Reliability and validity**

The reliability of the achievement motivation scale was established by using test-retest method. The researcher has selected 50 D.Ed. students and administered the achievement motivation scale to them. Again after one month the same questionnaire was given to the same D.Ed. students and test was administered. Then reliability and validity was found to be 0.73 and 0.85. This value shows that this scale is suitable for our condition. The same scale is translated in to Telugu by the researcher with the help of research supervisor.
A copy of the Telugu version of achievement motivation scale is presented in the Appendix – G.

A copy of the English version of achievement motivation scale is presented in Appendix – H.

A copy of the answer sheet of achievement motivation scale is presented in Appendix – I.

4.1.5 SOCIO – DEMOGRAPHIC VARIABLES (SDV)

The personal data sheet has prepared by the investigator with the help of experts in the field of education consists of the following particulars, with regard to the pupil’s personal, socio – demographic variables.

1. Region,
2. Management,
3. Gender,
4. Mother Education
5. Mother Occupation
6. Residence
7. Locality
8. Medium of the study
9. Type of family
10. Father Occupation
11. Religion
12. Economic Position of the Family
13. Student educational qualification
14. Age
15. Annual Income of the family
16. Father Education
17. Birth Order
18. Size of the Family
19. Caste

Socio – demographic variables are shown in Appendix – J.
4.2 FINAL STUDY

The final study is conducted after the construction and standardization of all the tools and adoption of the tools as described in the preceding pages.

Selection of sample for final study

The sample for the investigation consisted of 1200 D.Ed. students the academic year of 2008 – 2010 in Andhra Pradesh. The stratified random sampling was applied in three stages. Geographically Andhra Pradesh state is divided into three regions namely Telangana, Rayalaseema and Coastal. Three districts in each region was selected at random Medak, Mahaboob Nagar and Hyderabad districts are taken from Telangana region, Chittoor, Kurnool and Y.S.R. districts are taken from Rayalaseema region and Krishna, Guntur and East Godavari Districts are taken from Coastal region. In the next stage 2 colleges in each district were selected (one Government and one Private college). In the next stage 100 male and 100 female D.Ed. students from colleges. In total 600 male and 600 female students included in this study. It is a 3X2X2 (three regions X two managements X two genders) factorial design with 1200 sample subjects. The sample design for the study is presented in Table – 4.

Table: 4
Sample Design

<table>
<thead>
<tr>
<th>Management</th>
<th>Government</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Region</td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Telangana</td>
<td>100</td>
<td>100</td>
<td>400</td>
</tr>
<tr>
<td>Coastal Andhra</td>
<td>100</td>
<td>100</td>
<td>400</td>
</tr>
<tr>
<td>Rayalaseema</td>
<td>100</td>
<td>100</td>
<td>400</td>
</tr>
<tr>
<td>Total</td>
<td>600</td>
<td>600</td>
<td>1200</td>
</tr>
</tbody>
</table>
Administration of Tools

Having selected the colleges, following stratified random sampling method, the investigator consulted the heads of institutions selected, personally and explained them, the purpose of the test and took their permission for holding the test. The test dates for different colleges were intimated sufficiently in advance. The students were thoroughly motivated for the tests and they were given proper instructions for answering the different sets of test tools. The investigator visited all the colleges personally, as decided and intimated earlier. The sets of socio – demographic scale, self - efficacy, emotional intelligence and achievement motivation are given to the students and with the help of lecturers of concerned colleges, the tests are administrated. Thorough inspection is made with the help of concerned college lecturers, when the students are answering the different test tools. The students who attended the college on the day of collection of data are considered for the purpose of investigation. All the data gathering instruments are collected from the students and they are evaluated following the weightages given by the test constructing authorities concerned. All the collected data are given for statistical analysis. Scoring is done as already explained in the preceding pages, under each tool. The data on each variable is properly coded to suit for computer analysis.

4.3 STATISTICAL ANALYSIS

On the basis of the objectives of the investigation, statistical analysis is carried out by employing appropriate statistical techniques.

Frequency distribution tables, on the academic achievement are prepared for the total sample, for different regions, managements and gender. Measures of central tendency, measures of dispersion, skewness, kurtosis, co – efficient of variation and standard error of mean are computed and used wherever necessary. The inferential statistical techniques like ‘t’ test and ‘F’ tests are employed to test the different Hypotheses. Multiple “R” is computed by carrying out, step – wise regression analysis to find out, whether it would be possible to predict academic achievement of D.Ed. students. The obtained numerical results are adumbrated by graphical representations. The investigator considered graphical representations wherever necessary. For dividing the groups, quartile values are used wherever necessary. Sufficient number of tables are prepared.
For Statistical Formulae, the Following text Books were consulted:

- "Fundamental Statistics in Psychology and Education" by Guilford (1950).
- "Non-Parametric Statistics for the Behavioural Science" by Sidney Siegel (1956).
- "Statistical Methods for research workers" by Fisher (1950).

The significant levels employed with respective symbols are given here under:

** Indicates significant at 0.01 level
* Indicates significant at 0.05 level
@ Indicates not significant at 0.05 level