CHAPTER-III

METHODOLOGY

Conducting objective research in social sciences has become very important in the present era due to ever increasing complexities in society and conflicting conclusions of different researchers in same variables. Every scientific research follows some kind of methods that are scientific in nature. Methodology in the context of the research refers to the overall approach to be adopted with respect to the population and sampling design, tools of data collection and techniques of treating data. It is a matter of fact, that though all research work is carried out with some methods, the validity and accuracy of the findings are dependent upon the deftness and accuracy of the methodology adopted. Therefore, adopting proper methodology is of utmost importance in the whole research process, more particularly in generalising the results. After stating the problem, reviewing the recent developments in the field, formulating the objectives and hypotheses, the researcher needs to prepare the plan of work which provides him/her the blue print and directs the activity on desired line so as to reach the predefined goal with accuracy without losing labour. In short, the question of ‘how’ of research is answered by research methodology.

The main objective of the present investigation is to identify the level of aspiration and preferences of six value dimensions of undergraduate students of professional courses and to examine whether any relationship exists among them. A comparison between students of technical and non-technical professional courses is also attempted with regard to level of aspiration and value dimensions. As such the present chapter deals with the methods and procedure, identification of population, sampling
technique and sample size, tools used for data collection and statistical techniques employed.

3.1 Method Used

The present study has been conducted under the descriptive method. This method is the most popular and widely used research method in social sciences and in education. It is that method of investigation which attempts to describe and interpret what exists at present in the form of conditions, practices, social units, trends, effects, attitudes, beliefs, some behaviour etc. It is concerned with the phenomena that are typical of the normal conditions. Descriptive research can also be sub-divided into several categories like Surveys, Case study, Genetic studies, Cross-Cultural studies, Correlational studies, Ex-Post Facto research etc. The present study is a descriptive correlational research. Descriptive correlational studies are those studies which try to test the hypotheses on relationship between two or more variables. Therefore, this method seemed to be most appropriate in the present investigation as it aims at a study of value dimensions of students and to study its relationship with level of aspiration.

3.2 Identification of the Population

Defining population is the primary requirement of any research work. It is difficult to adopt proper sampling procedure and select representative sample if the population is not well defined. The present study has aimed at a study on the value dimensions of undergraduate students of professional courses. It has been delimited to the undergraduate degree colleges of professional courses affiliated to Gauhati University which are 83 in count by the end of 2012, of which 16 are colleges of
technical courses and 67 are colleges of non-technical professional courses. The study has excluded those conventional degree colleges which offer one or two professional subjects. As such the study has included all the students irrespective of sex and locality enrolled at undergraduate level in all the 83 degree colleges affiliated to Gauhati University offering education in professional courses during the study period of 2010 to 2013 as its population.

3.3 The Sampling Design

After defining the population, the most important task on the part of the researcher is to draw an adequate representative sample from the population. It is one of the most crucial steps the researcher faces. No research study can be carried out without taking samples as it is not always feasible to intervene and observe each unit of population under controlled conditions. The questions of time, money and energy come all the way. Sampling procedure reduces the dilemma in investigating entire population and makes the study feasible by selecting smaller representative samples from the entire population to draw out inferences and to generalise results for the entire population. David S. Fox (1969) remarks, “It is not possible to collect data from every respondent relevant to our study, but only from some fractional part of the respondents. This process of selecting the fractional part is called sampling.” Thus, sample is a smaller representative proportion of the population, the selection of which requires careful planning and appropriate procedure to avoid any criticism of the findings. If the sampling technique is not proper, the result will be of no use.

In the present study sampling has been done at two levels as (A) Selection of sample colleges and (B) Selection of sample students.
(A) Selection of Sample Colleges

Stratified Random Sampling method has been employed in selecting the sample colleges. The present study has aimed at an investigation of the value dimensions of undergraduate students of professional courses involving a comparison between students of technical and non-technical professional courses. Again, it has been delimited to those degree colleges which are affiliated to Gauhati University offering professional courses at undergraduate level which are 83 in number of which 16 are colleges of technical professional courses and 67 are colleges of non-technical professional courses. In order to select the samples, the colleges are first divided into two homogenous ‘strata’ as ‘colleges of technical professional courses’ and ‘colleges of non-technical professional courses’. Thereafter, 30% of the colleges have been randomly selected from both the strataums as sample colleges for the present study. Thus, a total of 25 undergraduate colleges of professional courses (05 colleges of technical professional courses and 20 colleges of non-technical professional courses) have been taken as sample for the present study.

The following measures are taken in selecting the sample colleges.

i. Though a huge discrepancy has been observed between the number of undergraduate degree colleges offering technical and non-technical professional courses affiliated to Gauhati University which are 16 and 67 in number respectively, randomisation has been done at proportionate value in order to get a fairly representation of the two types of colleges.

ii. Values may differ among students perusing different course contents. In the present study the researcher has used the term ‘Technical Professional Course’
to mean those professional subjects or stream of study which are under the purview of AICTE. These are Engineering, Technology, Management, Architecture, Town Planning, Pharmacy, Applied Arts & Crafts, Hotel Management and Catering Technology; and ‘Non-technical Professional Course’ referred to all other professional subjects or stream of study like Medicine, Education, Law, Music etc., except those which are under the purview of AICTE. As a matter of fact, in the present investigation certain types of colleges has been found large in number and some others very meagre, e.g. in the category of the colleges of non-technical professional courses maximum number is of education (B.Ed.) and law (L.L.B). Colleges offering courses in medicine, physical education, art and music etc. are very less in number. As such, care has also been taken to include all types of colleges as far as possible to guarantee a more representation of the distribution.

(B) Selection of Sample Students

Since the study has included ‘Gender’ as one of the variable for analysis, stratified random sampling method has been followed for selection of sample students from each of the selected colleges. This technique is used as it ensures a representative and cross-section of the population (male & female) in the samples. Sampling frames are developed for each of the selected colleges separately with the strength of male and female undergraduate students. Applying proportionate allocation, 5% of students from both strata of ‘Male’ and ‘Female’ has been taken from each of the colleges separately to guarantee a more representative distribution of students throughout the colleges. There are altogether 4143 students in 5 selected colleges of technical professional
courses of which 2747 are male and 1396 are female. Similarly, there are 2850 students in 20 selected colleges of non-technical professional courses of which 1272 are male and 1568 are female. Taking 5% from each of the stratum, the total sample for the present study consisted of 351 undergraduate students of professional courses of which 208 are students of technical professional courses (138 male and 70 female) and 143 are students of non-technical professional courses (64 male and 79 female).

The sample lay out is shown in Chart-1 and Figure-1.

**Chart– 1: Layout of Sample**

![Diagram showing the layout of the sample with 25 undergraduate colleges of professional courses divided into 5 colleges of technical professional courses and 20 colleges of non-technical professional courses. Each stratum has 5% of male and female students selected.](image-url)
Figure-1: Graphical Representation of Course-wise and Gender-wise number of Samples taken for the study.

![Bar Graph](image)

3.4 Tools of Data Collection

The instruments to gather new facts and to explore new fields in research are called tools. The selection of suitable tools is of vital importance for successful research work. While selecting the tools the researcher is to be very careful as tools should always reveal what the study intends to explore. In the present study also tools are selected in perfect consonance with the objectives of the study. Since, standardised tools relevant to the study are available, it is decided to use as such. The following standardised tools as shown in table-3.1 has been employed considering the objectives of the study and feasibility of their use.
Table-3.1: Tools Used for the Study

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Name of the Tool</th>
<th>Variables Investigated</th>
<th>Contents of the Tool</th>
<th>Developed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>STUDY OF VALUES TEST (SVT)</td>
<td>Value Dimensions</td>
<td>Theoretical, Economic, Aesthetic, Social, Political and Religious</td>
<td>Dr. R. K. Ojha and Dr. Mahesh Bhargava</td>
</tr>
<tr>
<td>2</td>
<td>LEVEL OF ASPIRATION MEASURE (LOA)</td>
<td>Level of Aspiration</td>
<td>Goal Discrepancy, Attainment Discrepancy and Number of Times Goal Reached</td>
<td>Dr. Mahesh Bhargava and Late Prof. M.A. Shah</td>
</tr>
</tbody>
</table>

**Tool-1: Study of Values Test (SVT)**

*Description*

The Study of Values Test is a standardised tool which measures the six basic interests or motives in personality of students studying in graduate and post-Graduate classes. These are Theoretical, Economic, Aesthetic, Social, Political and Religious. This type of classification is based upon Spranger’s type(s) of men. Study of Values Test (SVT) has two parts. First part consists of 30 items with two alternative choices for each items and the second part consists of 15 items with four alternative choices for each item. In total, there are 45 statements with 120 alternative choices of which 20 alternative choices belong to each of the six values. Thus, each of the six value dimensions has an equal possibility of being scored in the scale (SVT).
Procedure of Administration and Scoring of Response of Study of Values Test (SVT)

The Study of Values Test is self-administering. It can be administered in group or individually. As the scale consists of two parts, it is necessary to give caution regarding the changes in alternative answers of Part-I and Part-II. In Part-I which consists of 30 items with two alternative answers each, the respondents need to assign score 2 & 1 or 3 & 0 to the two alternative answers according to his/her weightage of preference. Similarly in Part-II which includes 15 items with four alternative answers each, the respondents are to put scores as 4, 3, 2 & 1 according to the order of their most preference. As 20 alternative answers belong to each of the six value dimensions of which 10 alternatives belongs to Part-I and 10 belongs to Part-II, each value dimension has the probability of scoring a maximum of 70 and a minimum of 10 score.

The Study of Values Test is self-scoring also. It can be scored by the respondent himself or by the researcher. If any statement remains unanswered, then a score of 1.5 should be awarded to each alternative for Part-I and 2.5 to each alternative for Part-II. The rational is that each statement in Part-I carries a total of 3 score and each statement in Part-II carries a total of 10 score. Then, the vertical columns of scores in each page are to be added and entered in the boxes at the bottom of the page. Transcribing the total from each page in the space provided for the scoring table which is labelled with the same letter, one can get the scores on six value dimensions. The total score for the six columns gives the total score on values which must be equal to 240.
Validity and Reliability of Study of Values Test (SVT)

The Study of Values Test has been found to have content validity as revealed from the experts’ views. The scale was administered to 500 male and 500 female graduate and post graduate students by the authors. The reliability of the scale was then determined separately for six value dimensions through using Split-half method which is presented in table 3.2

Table–3.2: Reliability Coefficients of Study of Values Test (SVT)

<table>
<thead>
<tr>
<th>Code</th>
<th>Value dimensions</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Theoretical</td>
<td>.78</td>
</tr>
<tr>
<td>B</td>
<td>Economic</td>
<td>.81</td>
</tr>
<tr>
<td>C</td>
<td>Aesthetic</td>
<td>.76</td>
</tr>
<tr>
<td>X</td>
<td>Social</td>
<td>.82</td>
</tr>
<tr>
<td>Y</td>
<td>Political</td>
<td>.83</td>
</tr>
<tr>
<td>Z</td>
<td>Religious</td>
<td>.84</td>
</tr>
</tbody>
</table>

Tool-2: Level of Aspiration Measure (LOA)

Description

Level of Aspiration Measure is a standardised tool designed by Dr. Mahesh Bhargava and Late Prof. M. A. Shah to measure the estimate of one’s future expectation in a given task i.e. level of aspiration where the subject has to perform some activities. There are a total of eleven (11) performance sheet (including one practice trial sheet) which are arranged in the order of trial numbers 1 to 10. Each performance sheet
contains 50 circles (each of 1 cm in diameter) which are arranged in five rows (ten circles in each row). Above and below the rows, there are two boxes on the right side. The upper box is for putting the number of expected score (except in practice trial) whereas the lower box is for writing the number of actual score or completed performance. Thus, ten trials are needed for each respondent besides practice trial.

**Procedure of Administration and Scoring of the Performances of the Level of Aspiration Measure**

This is a simple measure to administer upon any subject. It can be administered in group or individually. The respondents have a page containing 50 circles where he/she has to draw four lines so that they appear like a human face. The lines in the circles should be drawn in the sequence of Right Eye, Left Eye, Nose and Mouth. This activity has to perform for 30 seconds and after that the performer has to count the number of completed faces and enter it in the lower box labelled as actual score. This first trial is treated as practice trial where the respondents need not to put expected score before starting performance. In the proceeding trials, the respondents are to perform the same task along with putting the number of faces that he/she intends to complete within 30 second time duration on the basis of last actual performance in the upper box labelled as expected score. In this way the respondents need to complete 10 trials for actual work.

The scoring procedure of Level of Aspiration Measure is simple. It provides three types of scores: (a) Goal Discrepancy Score (GDS), (b) Attainment Discrepancy Score (ADS), and (c) Number of Times the Goal Reach Score (NTRS)
a) **Goal Discrepancy Score (GDS)**

The extent and direction of the difference between actual score in the previous trial and expected score in the present trial is known as Goal Discrepancy Score, which is obtained by subtracting the actual score on a trial from the expected score for the next trial. Thus, if expected score on the next trial is higher than the actual score on the previous trial, the GDS is positive whereas if it is less than the actual score on the previous trial, the GDS will be negative. The extent and size of the discrepancy shows how high or low one sets the goal.

b) **Attainment Discrepancy Score**

It is the difference between expected score (aspiration) and actual score (achievement) on the same trial and can be obtained by subtracting the expected performance from the actual performance on the same trial. The size of the discrepancy shows the extent to which one surpasses or fails to reach his goal.

c) **Number of Times the Goal Reach Score (NTRS)**

This may be obtained by the number of times where the respondent’s actual score is equal to or more than expected score. NTRS provides an index of respondent’s actual probability of reaching his pre-determined goal.

In the present investigation, according to the suggestion of the author of the scale, only Goal Discrepancy Score (GDS) has been taken into consideration as it is the index of level of aspiration. ADS and NTRS are the indexes of one’s goal reaching behaviour.
Validity and Reliability of Level of Aspiration Measure

Level of Aspiration is a standardised tool where validity coefficients and reliability are reported by the authors at satisfactory level. The Constructors of the scale argued that no measure of level of aspiration has made any mention of validity coefficient because the question of validity is not relevant to the study of level of aspiration. The question of validity is relevant when one behaviour is inferred from other behaviour indirectly. But here in case of level of aspiration, the respondent involves in actual task proposed by and the situation is by and large realistic for him/her. Still the developers had tried to find out the validity coefficients of aspirations as shown in table 3.3.

Table-3.3: Validity Coefficients of Level of Aspiration Measure

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>External Validity Criteria</th>
<th>N</th>
<th>GDS</th>
<th>ADS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Card Sorting Tray Tasks</td>
<td>30</td>
<td>.58</td>
<td>.52</td>
</tr>
<tr>
<td>2</td>
<td>Ansari and Ansari: The L.A. Coding Test</td>
<td>60</td>
<td>.73</td>
<td>.68</td>
</tr>
<tr>
<td>3</td>
<td>V. P. Bhargava: Level of Aspiration (Coding method)</td>
<td>60</td>
<td>.67</td>
<td>.62</td>
</tr>
<tr>
<td>4</td>
<td>J.S. Grewal: Occupational Aspiration Scale</td>
<td>60</td>
<td>.76</td>
<td>.65</td>
</tr>
<tr>
<td>5</td>
<td>Sharma and Gupta: Educational Aspiration Scale Form V</td>
<td>60</td>
<td>.48</td>
<td>.56</td>
</tr>
<tr>
<td>6</td>
<td>Deo Mohan Projective Test of Achievement Motivation (n-ach) Male Group</td>
<td>40</td>
<td>.72</td>
<td>.67</td>
</tr>
<tr>
<td></td>
<td>Deo Mohan Projective Test of Achievement Motivation (n-ach) Female Group</td>
<td>40</td>
<td>.78</td>
<td>.73</td>
</tr>
<tr>
<td>7</td>
<td>T.R. Sharma: Academic Achievement Motivation Test (AAMT)</td>
<td>80</td>
<td>.84</td>
<td>.76</td>
</tr>
</tbody>
</table>

Note: N-Number of Cases, GDS- Goal Discrepancy Score, ADS-Attainment Discrepancy Score.

Again, the reliability of this measure is calculated by the measure developers through employing test-retest method and split-half method as shown in table 3.4.
### Table-3.4: Reliability Coefficients of Level of Aspiration Measure

<table>
<thead>
<tr>
<th>Method</th>
<th>N</th>
<th>GDS</th>
<th>ADS</th>
<th>NTRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test-retest Method</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With a gap of 1 month</td>
<td>100</td>
<td>.88</td>
<td>.82</td>
<td>.86</td>
</tr>
<tr>
<td>With a gap of 3 months</td>
<td>60</td>
<td>.72</td>
<td>.72</td>
<td>.74</td>
</tr>
<tr>
<td>Split Half Method</td>
<td>60</td>
<td>.77</td>
<td>.69</td>
<td>.78</td>
</tr>
</tbody>
</table>

*Note: GDS- Goal Discrepancy Score, ADS-Attainment Discrepancy Score, NTRS-Number of Times the Goal Reach Score*

### 3.5 Variables of the Study

Any scientific study aims to investigate the cause and effect relationship between two or more phenomena or variables. A concept which can take on different quantitative values is called a variable. Variables are the phenomenon or attributes through which the investigation proceeds in any scientific study. When a variable depends upon or is consequence of another variable it is termed as dependent variable and the variable that is antecedent to the dependent variable is termed as independent variable. In other words independent variable stands for the cause and dependent variable stands for the effect. Independent variables that are not related to the purpose of the study, but may affect the dependent variable are called extraneous variable (Kothari, C. R. 2008).

In the present investigation the six value dimensions namely theoretical economic, political, social, aesthetic and religious are regarded as dependent variables and level of aspiration, sex and type of course (education) are treated as independent variables.
3.6 Collection of Data

The researcher himself has collected all the relevant data from all the sample students under consideration. In order to administer the tools, the investigator personally visited the selected degree colleges to appraise the authorities about the objectives of the study and to get permission to administer the tools. Then the complete list of students enrolled in different professional courses during the particular study period has been collected and the sampling frame is prepared accordingly. A tentative schedule has been finalised with the college authorities to administer the tools upon the students. Accordingly, the investigator met the students and was introduced to them by college authorities. Thereafter, the investigator has created rapport with the students and requested their cooperation through explaining the nature and objectives of the investigation. Both the tools are administered individually or in group of maximum 10 students at a time as both the tools adopted for the study do have the provision of both type of administration. In some cases after preparing the sampling frame the students are personally approached in hostels or residences and data have been collected accordingly. Before administering the tools a briefing of the test and instructions is made to the respondents’ and ensured that they are at ease. While administering the Study of Values Test, efforts are made to explain that it is not a test of intelligence, skills or any kind of knowledge, but it is a test of personality only. Stop watch is used to count the time duration of 30 seconds in each trial of Level of Aspiration Measure. After collecting the data the respondents are thanked for their cooperation. In this way a day or two, has been spend in each sample colleges. The same agenda has been followed to collect data from all the sampled colleges.
3.7 Treatment of Data

The data that have been gathered for the present study is of quantitative type. Hence, only quantitative approach of treating data has been used in the present context. Quantitative approach is a set of numerical observation obtained as a result of counting or measuring some characteristics. As the present study is mainly based on examining group performances and relationship between variables, the statistical techniques employed for the study are ‘frequency’, ‘percentage’, ‘mean’, ‘sd’, ‘t-test’, ‘correlation’, and ‘regression-prediction’ which are explained below in brief. The whole analysis is made through using Statistical Package for Social Sciences (SPSS) software.

1. Mean scores of all the six value dimensions as well as of level of aspiration has been computed for the entire group as well as separately for the sub-groups. The preference order of value dimensions is determined on the basis of weightage of mean scores of the value dimensions for different groups. Again, to account the high, moderate and low aspirant students, the procedure of highest 33%, middle 34% and lowest 33% of scores on level of aspiration has been employed as per the suggestion and advice of the authors of the scale Level of Aspiration Measure (LOA). In this way the frequencies of high, moderate and low aspirant students are calculated for all the categories, viz. undergraduate students of technical and non-technical professional courses, male and female undergraduate students of professional courses, male and female undergraduate students of technical as well as non-technical professional courses.

2. The t-test has been applied to determine the significance of difference in the mean scores of six value dimensions as well as level of aspiration score between male and female students of technical and non-technical professional courses.
3. Pearson’s correlation technique has been used to examine the relationship between scores of level of aspiration and each of the six value dimensions of Study of Values Test (SVT).

4. The t-test (CR) has been used to determine the significance of difference in the relationship of level of aspiration and each of the six values of Study of Values Test (SVT) between various groups.

5. Linear regression coefficients has been computed and regression equations of level of aspiration (predictor variable) on each of the six value dimensions (criterion variables) are set up separately for students of technical and non-technical professional courses, male and female students of professional courses, male and female students of technical as well as non-technical professional courses and students of professional courses as a whole. Furthermore, Coefficients of Forecasting Efficiency for each of the Regression Equations are calculated and presented in % to understand the efficiency level of level of aspiration in predicting value dimensions.

The .05 level of confidence interval has been adopted to determine the statistical significance of ‘t’ value, ‘r’ value and ‘CR’ value in all cases.

3.8 Delimitation of the Study

The present study has been delimited to the undergraduate students of degree colleges affiliated to Gauhati University offering education only in professional courses.
A brief glance of the research design is presented in chart 2 as below.

Chart-2: Flow Chart of the Research Design

**Research Design**
- Descriptive Research
- Correlational Study

**Universe**
- Undergraduate Students of Professional Courses under Gauhati University

**Variables**
- Dependent
  - Value Dimensions
- Independent
  - Level of Aspiration
  - Sex
  - Type of Courses (Education)

**Sample**

**Level-I: Colleges**
- 05 (30%) of Technical Professional Courses
- 20 (30%) of Non-Technical Professional Courses
- Stratified (Proportionate) Random Sampling Method

**Level-II: Students**
- 208 of Technical Courses (138 male & 70 female at 5%); 143 of Non-Technical professional Courses (64 male & 79 female at 5%)
- Stratified (Proportionate) Random Sampling

**Tools Adopted**
- Study of Values Test (SVT)
- Level of Aspiration Measure (LOA)

**Collection of Data (Survey) and its Tabulation**

**Treatment of Data**
- Frequency and Percentage
- Mean and Standard Deviation
- Independent ‘t-test’
- Pearson’s Correlation Technique
- Regression-Prediction

**Observation and Generalisation**