CHAPTER III

DESIGN OF THE STUDY
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3.0 Introduction

The researcher must decide quite early in his/her research work exactly how his/her investigation should be carried out because the success of the research depends upon its meticulous planning, which includes apart from other things, selection of an appropriate design of research. The basic purpose of research design is to help provide answer to research questions in a very systematic manner. "A research design is the 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" (Schultz, 1962,50). In short, a research design once laid out tells us exactly what data to collect, from where to collect and how to analyse the data that has been collected. Therefore it is of vital importance to select an appropriate research design in the research process. The various aspects of the research design of the present study are discussed under different heads in the following pages.
3.1 The Research Method

Research Methods lay a strong foundation for the research work to be carried out in a particular field. Therefore, in order to ensure the smooth functioning and proper carrying out of a particular research project, every researcher should select a proper research method. This in turn enables the researcher to have an insight as to how to go about his or her work as well as how to organise his or her ideas in a proper form.

As already discussed in the preceding chapter, researches in this area have employed different methods for analysing the cost of higher education and financing of higher education. It is difficult to say which of them is the most appropriate, as each has its own merits and shortcomings. Moreover, it cannot be again said that the research methods used in the study are superior or inferior to those used in other researches. Selection of an appropriate research method depends on the nature of the variables to be studied, the objectives and the hypothesis of the study. These considerations have led the investigator to use the Descriptive Comparative Survey method in the present study.

3.2 Sources of Data

Data for the present study were collected from the following sources:

2. Goa University: Annual Accounts, Office of the Finance Officer, Goa University.
3. Annual Reports of Goa University.
4. Office records of the Principals' of various colleges/institutions of higher education.

3.3 Population and Sample

3.3.1 Institutions of Higher Education

Out of 20 general colleges (having Arts, Science and Commerce Streams) in Goa, the researcher selected 60 percent of the colleges (i.e. 12 colleges) employing stratified random sampling technique. The colleges so selected represented the colleges offering courses for only B.Com. degree, both B.A. & B.Sc. degrees, B.A. and B.Com. degrees and B.A., B.Sc. and B.Com. degrees. Moreover, both the Government as well as Private (Government-aided) colleges were included. Out of twelve colleges selected, the Principals of 4 colleges did not agreed to supply the necessary data inspite of repeated requests by the researcher. Hence, the data producing sample of general colleges was reduced to eight colleges. Since there is only one college each offering B.Sc. (Home Science), B.Sc. Nursing and B.Arch. degrees, all these colleges were included in the study. Out of two each Law Colleges and Secondary Education Institutions, only one from each category was selected for the study. Thus, the data producing sample of colleges consisted of 13 colleges. The detail breakup is given in Table 3.3.1
Table 3.3.1: Detail Break-up of the Population of Institutions (Colleges), Invited Sample and Data Producing Sample

<table>
<thead>
<tr>
<th>Type of Institutions</th>
<th>Population (Total No. of Institutions)</th>
<th>Invited Sample</th>
<th>Data Producing Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Colleges (Arts, Science &amp; Commerce Streams)</td>
<td>20</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>College of Home Science</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>College of Teacher Education</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>College of Architecture</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>College of Law</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Institute of Nursing</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

3.3.2 Departments of Goa University

Data relating to the expenditure under different heads were collected from the Annual Accounts of Goa University about all the Post-Graduate Departments of Goa University.

3.3.3 Sample of Students

To find out the private unit cost of higher education the students who were enrolled in different colleges/institutions/PG Departments of Goa University constituted the population of students. Fifty percent of the students enrolled in different courses were selected and contacted to collect data from them. Students of both the sexes, hostelites and day scholars and belonging to rural & urban areas were represented in the Samples. However, at the time of the completion of the course i.e. just before the final University degree examination many of the students selected did not give the required data to the researcher. Therefore, the size of the data producing sample of student was less than the invited sample. The detailed
break up of the data producing samples of students are given in the Table 3.3.2, Table 3.3.3 and Table 3.3.4.

Table 3.3.2: Sample of Students of B.A., B.Sc. and B.Com. Degrees

<table>
<thead>
<tr>
<th></th>
<th>Arts</th>
<th>Science (including B.Sc. Home Science)</th>
<th>Commerce</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Govt.</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>29</td>
</tr>
<tr>
<td>Private</td>
<td>26</td>
<td>14</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Girls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Govt.</td>
<td>9</td>
<td>14</td>
<td>46</td>
<td>35</td>
</tr>
<tr>
<td>Private</td>
<td>53</td>
<td>10</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>52</td>
<td>92</td>
<td>86</td>
</tr>
<tr>
<td>Grand Total</td>
<td>152</td>
<td>178</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.3.3: Sample of Students of various Professional Degrees

<table>
<thead>
<tr>
<th></th>
<th>Law</th>
<th>Nursing</th>
<th>Education</th>
<th>Architecture</th>
<th>Management</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Rural</td>
<td>Urban</td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>Boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Govt.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>6</td>
</tr>
<tr>
<td>Girls</td>
<td>N.A.</td>
<td>N.A.</td>
<td>5</td>
<td>1</td>
<td>N.A.</td>
<td>8</td>
</tr>
<tr>
<td>Private</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>4</td>
<td>14</td>
<td>N.A.</td>
<td>N.A.</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Girls</td>
<td>5</td>
<td>11</td>
<td>N.A.</td>
<td>N.A.</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>25</td>
<td>5</td>
<td>1</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Grand Total</td>
<td>34</td>
<td>6</td>
<td>51</td>
<td>25</td>
<td>21</td>
<td>137</td>
</tr>
</tbody>
</table>

N.A. : Not Applicable

Table 3.3.4: Sample of Students of M.A., M.Sc. & M.Com. degrees

<table>
<thead>
<tr>
<th></th>
<th>Arts</th>
<th>Science</th>
<th>Commerce</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>Boys</td>
<td>06</td>
<td>11</td>
<td>05</td>
</tr>
<tr>
<td>Girls</td>
<td>09</td>
<td>09</td>
<td>07</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>Boys</td>
<td>13</td>
<td>13</td>
<td>05</td>
</tr>
<tr>
<td>Girls</td>
<td>23</td>
<td>09</td>
<td>05</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>42</td>
<td>22</td>
<td>115</td>
</tr>
</tbody>
</table>
3.4 Data Gathering Tools

The following data gathering tools developed by the investigator were used in the present study:

1. Information Schedules (for collection of data from various sources as mentioned in Section 3.2).

2. Two Information Schedules (Information Schedule-I, Information Schedule-II) separately for the Principals of each type of colleges/institutions.


5. Economic Status Questionnaire for Students.

Detailed descriptions of each of the data gathering tools are given in the following pages:

3.4.1 Information Schedule (for Directorate of Higher Education)

An information schedule was prepared to collect data from the office records of the Directorate of Higher Education, Government of Goa, about the grants provided / amounts sanctioned under different heads to different institutions of higher education in state of Goa. A copy of the schedule is enclosed in Appendix-A.
3.4.2 Information Schedule (for collection of data from Annual Accounts of Goa University)

An information schedule was prepared to collect data from various Annual Accounts of Goa University about the expenditure incurred under different salary and non-salary heads of expenditure in different post Graduate teaching departments. A copy of the information schedule is enclosed in Appendix – B.

3.4.3 Information Schedule (for collection of data from Annual Reports of Goa University)

The researcher prepared an information schedule to collect data about students enrollment and teaching staff in different courses in different types of colleges/institutions of higher education in Goa from various annual reports published by the Goa University. The information schedule consisted of two sections. The first section required information to be collected about the number of teachers employed in different institutions for various courses. In the second section data about students enrollment in different institutions in various courses in different academic years were to be filled in. A copy of the information schedule is given in Appendix-C.

3.4.4 Information Schedules on Income & Expenditure for Principals/Heads of Institutions

After going through the relevant literatures, the investigator met some accountants of colleges and informally discussed with them to get ideas about the various sources of income and different heads of expenditure involved in an
educational institution. Based on the points collected from the accountants, the researcher developed the information schedule.

Though slight variations were there in the information schedules for different types of institutions, broadly, all the schedules had the same basic features. The schedule consisted of two parts. In the first part there were items relating to different sources of income under different heads. In the second part there were ten items with sub-items about the expenditure generally an educational institution incur under various heads. All the items in the schedules were of completion type. The respondents were required to supply the amount (in Rupees) by writing the same in the space provided for the purpose against each item/sub-items.

After preparing the schedules the investigator showed the same to some accountants of colleges to obtain their suggestions about the appropriateness of different items/sub-items included in the schedules. After receiving their suggestions, necessary changes were made in the schedules. In this way, the final form of the schedules were made ready. Copies of the schedules are enclosed in Appendix-D.

3.4.5 Information Schedules for Principals/Heads of Institutions about Staff and Students Enrolment

First of all the researcher met the Headclerks/office superintendents of different types of institutions and informally discussed with them to get the ideas about different categories of non-teaching staff who are generally employed in the
institutions. Then the researcher developed the information schedules. Though some differences were there between the information schedule developed for different categories of institutions, many of the items in these schedules were similar in nature.

The information schedules had two parts. The first part had two sections. The first section had items about the number of teaching staff at different grades in different subjects/disciplines (in the case of colleges having multi subjects/multi disciplines) the second section had a number of items about different categories of non-teaching staff working in an institution. The second part of the schedule had items relating to students enrollment and passing during different academic years.

All the items in the schedule were of completion type. The respondents were required to supply the necessary data by writing the numbers on the space provided against each items/sub-items. Copies of information schedules are given in Appendix-E.

3.4.6 Preliminary Information Schedule for Students

The researcher prepared a preliminary information schedule to be distributed to the students in the beginning of the academic year/beginning of the course as applicable. The purpose of giving this schedule to the students was to request them to record the expenditure they incurred under different heads on a day to day basis during an academic year. The schedule consisted of two columns. In the first column a list of items was prepared. In the second column the students
were required to write the amount of expenditure incurred with the date on which the expenditure was incurred. The copy of the schedule is given in the Appendix-F.

3.4.7 Final Information Schedule for Students

To collect data about private unit cost, a final information schedule was prepared for the students. The schedule had four sections. The first section deals with the preliminary information about the students. The second section consisted of eight items, each indicating a particular head of expenditure. The third section was applicable for those students who were dayscholars. The expenditure dayscholars generally incur under different heads were listed in this section. The fourth section was applicable for the students who either stay in hostels or students mess or as paying guests. Different types of expenditure generally such students incur were listed under this section. Thus, in the schedule under each of the four sections there were two columns. The first column consisting a list of items indicating different types/heads of expenditure. In the second column blank spaces were provided for the students to write the amount (in rupees) they had spent. This they were required to do using the data they had already recorded in the preliminary information schedule. A copy of the final information schedule is given in Appendix-G.

3.4.8 Economic Status Questionnaire

For collection of data about the family economic status of students (of those students from whom data regarding private unit cost were collected) an Economic Status Questionnaire was developed by the investigator. The
questionnaire consisted of two sections. The first section was about the monthly income of the family and the second section consisted of different items about the assets/property the family member possess. A copy of the Economic Status Questionnaire is given in Appendix-H.

3.5 Data collection Procedures

3.5.1 Collection of Data from Students

The Students who were enrolled in courses having a duration of three years were contacted in the middle of the first year of the course (i.e. after the researcher registered for Ph.D. degree). The researcher distributed the Preliminary Information Schedule to the Students and requested to fill in the same during the coming months of the first year of the course. At the same time they were also requested to recall the approximate expenditure they had incurred under different heads during the previous months and write down the same. In the beginning of their second year the researcher met the same students and distributed the final information schedule. The students were requested to fill in the schedule based on the data they had recorded in the preliminary information schedule. After collecting the same from the students, the investigator once again distributed the preliminary information schedule to the students. Next year i.e. when the students were enrolled in the third year were contacted again and requested to fill in the final information schedule based on the data they had recorded on the preliminary information schedule during the second year of the course. Once again they were supplied with the preliminary information schedule for the same purpose. At the
end of the third year (at the completion of the course) the researcher requested
them, to fill in the final information schedule for the last time. On the same day
the researcher also administered the Economic Status Questionnaire on the
students. The students who were studying for two year courses were contacted in
the beginning of the first year (Part I) and data were collected from them using the
Preliminary Information Schedule twice as well as the Final Information Schedule
(for students) twice following the same procedures explained above. The students
who were enrolled in one year courses were contacted in the beginning as well as
at the end of the course and data were collected from them using both the
preliminary information schedule in the beginning of the course and final
information schedule at the end of the course. However, the students who were
studying in five year degree course i.e. B.Arch. were contacted during the third
year of their study. Thus the data about private cost for the three years were
collected following the procedures explained above. But for the first two years the
students were requested to recall the approximate expenditure they had incurred
under different heads and write down the same on the final information schedule
directly.

3.5.2 Collection of Data from the Principals

First of all, the researcher personally met the Principals of different
colleges/Institutions of Higher Education selected for the purpose and requested
them for their cooperation. After they agreed, the researcher distributed to them
the information schedules mentioned in Section 3.4.4 and Section 3.4.5. The
Principals directed the concerned officials of the Institutions to fill in the
information schedules. The researcher met the concerned officials after a gap of few days and collected the filled in information schedules personally. Data regarding income/grants received were collected for the years 1997-98, 1998-99 and 1999-2000 in separate information schedules from all types of Institutions. Data regarding expenditure incurred were collected for the years 1997-98, 1998-99 and 1999-2000 in the case of Institutions offering three years degree courses, for the years 1998-99 and 1999-2000 in the case of institutions offering two year degree courses, for the years from 1995-96 to 1999-2000 in case of the college having five years degree course and only for the year 1999-2000 in the case of institutions offering one year courses.

3.5.3 Collection of Data from the Office of the Finance officer of Goa University.

The researcher personally met the Finance Officer of the Goa University with the request to supply the necessary data. The finance officer supplied the audited Annual Accounts of the Goa University to the researcher. After obtaining the Annual Accounts, the researcher himself filled in the information schedule based on the data recorded in the Annual Accounts.

3.5.4 Collection of Data from the Annual Reports of Goa University

The researcher met the concerned officials of the Goa University and collected the Goa University Annual Reports for the last five years. The researcher
transformed the necessary data from the annual reports on to the information schedule developed for the purpose.

3.5.5 Collection of Data from the Office of the Directorate of Higher Education

The researcher personally met the Director of Higher Education, Government of Goa and requested him to supply the necessary data from the Office records. The Director of Higher Education directed the concerned officials to help the researcher. The researcher himself filled in the information schedule developed for the purpose by taking the data from the office records as supplied to him.

3.6 Scoring/Coding, Tabulation of Data, Data Analysis Methods/Techniques

The amount of expenditure under different heads supplied by the students were added separately for each student for each academic year. Then each student's expenditure for all the years (courses having duration of more than one year) were added to find out the private cost for each students. Different frequency distributions of the private costs (total amount of expenditure incurred by each student/student's family) were made keeping in mind each type of Bachelor's/Master's degrees.
The family economic status of students was calculated following the procedure listed below (designed & used by Paily, 2000):

- The total monthly income supplied by the student about each family member was directly rated on a seven point rating scale.
- All the assets/properties possessed by the family members were separately converted into rupees (approximate amount) and the same were rated on a seven point scale.
- Sum total of economic status score was obtained for each student.
- Students were categorized into three levels of economic status viz.: High, Average and Low. This was done by finding the mean and SD of the entire group and then the cut-off points were determined as follows:
  
  \[
  \begin{align*}
  \text{High} & \quad = M + 1\text{SD} \\
  \text{Average} & \quad = M \pm 1\text{SD} \\
  \text{Low} & \quad = M - 1\text{SD}
  \end{align*}
  \]

The data collected from various sources as mentioned under Section 3.2 were directly transformed onto a separate sheet in Tabular form (Master Table) and subsequently the data were tabulated in separate table for analysis keeping in mind the objectives and hypotheses of the study.

The data were analysed using the following procedures/statistical methods:

i) Percentage analysis

ii) Calculation of Mean and SD

iii) Co-efficient of Contingency-C

iv) Chi-square test \((X^2)\)

v) t-test.