CHAPTER - III
PLAN AND PROCEDURE

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CHAPTER III

PLAN AND PROCEDURE

In second chapter researcher has presented the review of related literature. In present chapter she has discussed about the research methodology adopted for the study.

3.1 Research :

In our day to day life we face many problems. To solve these problems we have to think from different points of view. If our thinking is on correct lines & we take a right decision, we become successful in solving our problem. If we try to solve our problem systematically & scientifically, we get new knowledge. This process of solving a problem systematically and scientifically by analysing & organizing the information is called as Research.

According to Best & khan (2006), 'Research has been defined as the systematic and objective analysis and recording of controlled observations that may lead to the development of generalizations, principles or theories, resulting in prediction and ultimate control of many events.'[1]

3.2 Educational Research :

According to Encyclopedia of Educational Research the term Educational research is broadly defined as 'Any systematic striving or understanding actuated by a need or sensed difficulty of people directed toward some complex phenomena of more than immediate personal concern stated in a problematic form'.[2]

Educational research is a tool of tremendous importance for verifying, testing & validating current & old knowledge & also a potent means of creating new knowledge related to the whole process of Education.

Research Methods – There are three major types methods of research.

1) Historical Research

2) Experimental Research

3) Descriptive Research

1. Historical Research – It describes what was?

The process involves investigating, recording, analyzing and interpreting the events of the past for the purpose of discovery and making generalizations that are helpful in understanding the past & the present & to a limited extent in anticipating the future.

2. Experimental Research – It describes what will be?

Here certain variables are carefully controlled or manipulated, the focus is on variable relationships. Deliberate manipulation is always a part of the experimental method.

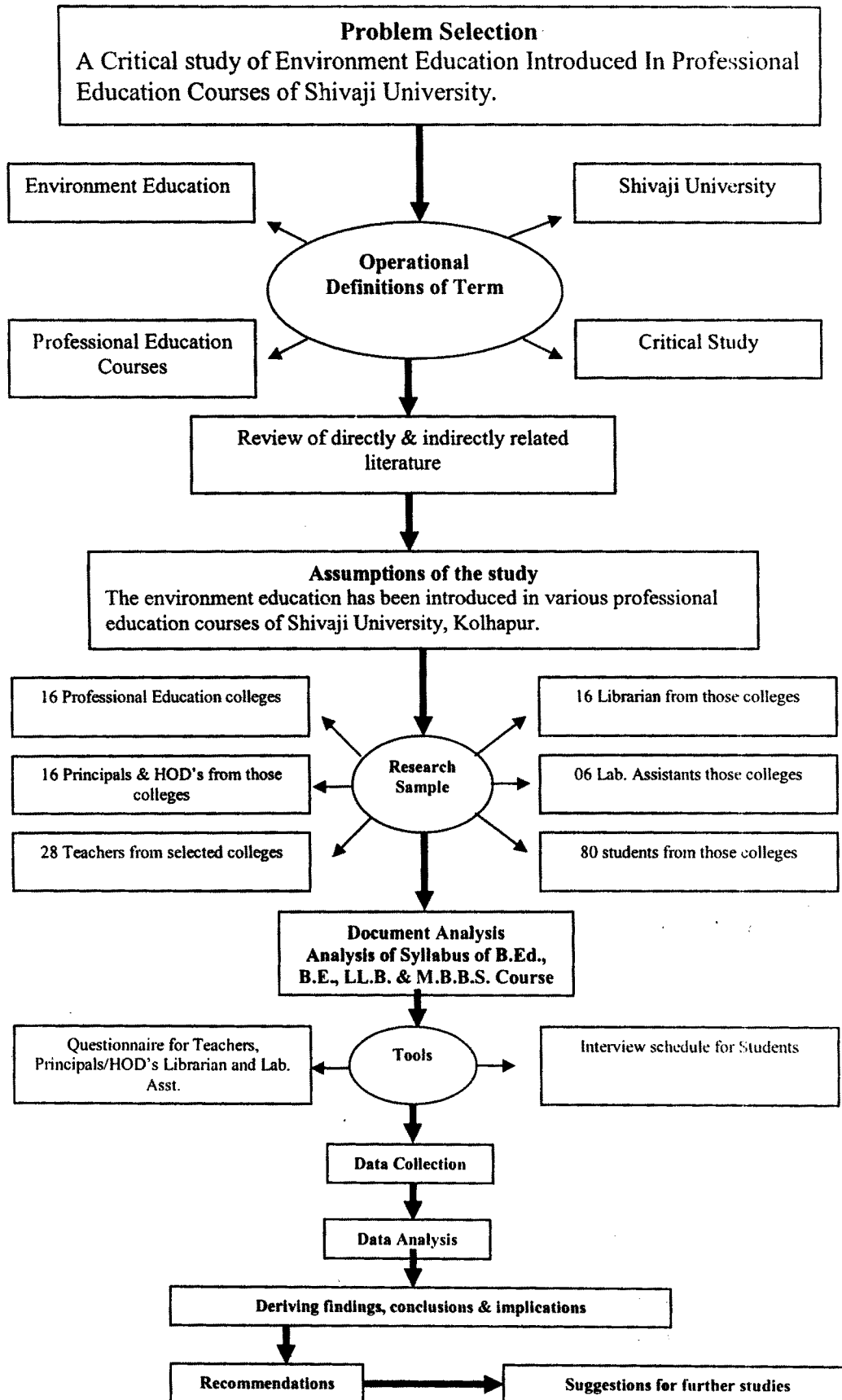**3. Descriptive Research – It describes what is?**

It involves the description, recording, analysis and interpretation of conditions that now exist. It involves some type of comparison or contrast and may attempt to discover relationships that exist between existing non-manipulated variables.

Descriptive research, 'describes and interprets what is concerned with conditions or relationships that exist, practices that prevail; beliefs, points of view, or attitudes that are held, processes that are going on, effects that are being felt; or trends that are developing'[3].

There are several types of Descriptive Research. Some of them are as follows

a) Case study

b) Surveys

c) Developmental studies

d) Document analysis/content analysis

e) Trend Analysis

f) Qualitative observational Research

g) Ex-post facto studies

Fig. No.4 Procedure of Research

Problem Selection
A Critical study of Environment Education Introduced In Professional Education Courses of Shivaji University.

| Environment Education | | Shivaji University |

Operational Definitions of Term

| Professional Education Courses | | Critical Study |

Review of directly & indirectly related literature

Assumptions of the study
The environment education has been introduced in various professional education courses of Shivaji University, Kolhapur.

| 16 Professional Education colleges | | 16 Librarian from those colleges |

Research Sample

| 16 Principals & HOD's from those colleges | | 06 Lab. Assistants those colleges |

| 28 Teachers from selected colleges | | 80 students from those colleges |

Document Analysis
Analysis of Syllabus of B.Ed., B.E., LL.B. & M.B.B.S. Course

| Questionnaire for Teachers, Principals/HOD's Librarian and Lab. Asst. | **Tools** | Interview schedule for Students |

Data Collection

Data Analysis

Deriving findings, conclusions & implications

| **Recommendations** | → | **Suggestions for further studies** |

3.3 Survey Method :-

For present study Survey method & Document Analysis have been used.

Survey method is an important and very common method of educational research. It is essentially cross-sectional.

It is not only collecting data and tabulating figures. It involves a clearly defined problem and definite objectives. It requires experts and · imaginative planning careful analysis and interpretation of the data gathered & logical & skillful reporting of the findings. Worthwhile survey studies collect three types of information.

I) Of what exists by studying and analizing important aspects of present situation.

ii) Of what we want by clarifying goals and objective possibly through a study of the conditions existing elsewhere or what experts otherwise consider to be desirable.

iii) Of how to get through discovering the possible means of achieving the goals on the basis of the experiences of others or the opinions of experts.

3.3.1 Purpose of surveys –

Following may be the purposes of surveys -

1. Survey is concerned with determining the immediate status of a given phenomenon.

2. Survey method serves as a stepping stone to more precise investigations.

3. It also serves as a direct source of valuable knowledge concerning at different times.

4. It secures historical perspective through a series of cross sectional pictures of similar conditions at different times.

3.3.2 Steps In the construction of A survey –

1. The particular problem of education which is to be investigated is identified & clearly stated.

2. Researcher can elaborate a hypothesis which is to be tested.

3. The design of the survey & the procedure is to be followed in its execution. The nature of the sample is also to be determined.

4. Instruments to be used, must be specified, the advantages & the disadvantages of their use in the study is to be discussed.

5. The results have to be reported interms which are precise & unequivocal. Whether qualitative or quantitative terms are used will depend upon the nature of the results & the expertise of the research.

6. The last & important step is the interpretation of the results in the light of previous research & the drawing of conclusions.

3.3.2 Advantages of Survey method –

1. This is extremely effective way of gathering information from a large number of sources relatively cheaply & in a relatively short time.

2. The results can normally be analysed quickly.

3. Survey is extremely important & widely used type of research & if used effectively, it entails more than mere collection of information.

4. The survey method has a valuable role to play as a means of providing the educator with an accurate description of some of the variables involved in education

3.3.4 Types of survey – Following are the types of surveys commonly used.

1. Institutional Survey/School surveys

2. Job surveys

3.   Sociological & Psychological surveys

4.   Population surveys

5.   Documentary surveys

6.   Public opinion surveys

7.   Community surveys

3.3.5 School survey –

The present study comes under school survey. A school survey is usually an assessment and evaluation study. It's purpose is to gather detailed information for judging the effectiveness of instructional facilities, curriculum teaching and supervisory personnel and financial resources in terms of best practices and standards in education.

The present study dealt with the introduction of Environment Education at various professional education courses of Shivaji University. It has elaborated the teaching strategies adopted to teach Environmental Education, resources available, exchange of resources, association of the Educational Institutions with Environmental NGO etc. Thus it is related to the practices adopted in an Educational Institution and is therefore a school survey.

3.4 Document Analysis

The basic goal of document or content analysis is to take a verbal, non-quantitative document and transform into quantitative data.
According to Berelson (1954)

'Content analysis is a research technique for the objective, systematic and quantitative descriptions of the manifest content of communication.'[4]

3.4.1 Purpose of Document Analysis –

The purposes of Document analysis cover virtually all areas of specialization encompassed by survey techniques.

In addition document analysis has some special purposes such as the determination of authorship for documents whose authority is questionable.

The five chief tasks facing a document analyst are

a) Draw the sample of documents.

b) Define the content of categories. The actual content depends upon the purpose of the study.

c) Define the recording unit.

d) Define the context unit.

e) Define the system of enumeration.

3.4.2 Advantages of Document Study :

1. Inaccessible subjects – One of the advantages of document studies is that they allow research on which the researcher does not have physical access, and cannot study by any other method.

2. Relatively low cost – content analysis can be inexpensive compared to large-scale surveys.

3. High quality

3.4.3 Disadvantages of Document study

1. Bias – The various goals & purposes for which documents are written can bias them in various ways.

2. Incompleteness - Many documents provide an incomplete account to researcher who has no prior experience with a knowledge of the events or behaviour discussed.

3. Lack of availability - There are many areas of study for which no documents are available.

4. Limited to verbal behavoiour – Documents provide information only on a respondent's verbal behaviour & provide no direct information on the respondents non-verbal behaviour.

5. Lack of a standard format – There is no standard format for various documents or contents.

6. Coding difficulties- coding is one of the most difficult tasks facing the document analyst.

3.4.4 Document Analysis In present study :

In the present study, Document analysis of the syllabi of following professional Education courses of Shivaji University has been done.

1) Bachelor of Education (B.Ed.)

2) Bachelor of Engineering (B.E.)

3) Bachelor of Law (LL.B.)

4) Bachelor of Medicine & Bachelor of Surgery (M.B.B.S.)

In this analysis total number of Environment related papers were identified from the syllabi of each professional course mentioned above. The weightage given for these paper was recorded.

In the analysis of theory part of each Environment related paper from each Professional Education Course, environment related units present in each paper were identified and weightage given to them was recorded.

In the analysis of the practical part of each Environment related paper from each professional course practicals included and the weightage given was identified.

Based on the above analysis the findings related to the introduction of environment Education in Professional Education Courses could be put forth.

3.5 Tools And Techniques of Data Collection

In any research activity, collection of the data is an important part of the process. For each & every type of research activity undertaken, researcher needs certain instruments to gather new facts or to explore new fields. The instruments that are thus employed as a means are called tools

of data collection. In this study questionnaire and Interview schedule were used to collect the data.

3.5.1 Questionnaire :

A questionnaire is used when factual information is desired. A questionnaire consists of a series of questions or the statements to which individuals are asked to respond.

According to the Penguin Dictionary of Psychology,

'A questionnaire as a series or questions dealing with some psychological, social, educational topic or topics sent or given to a group of individuals with the objective of obtaining data with regard to some problem, sometimes employed for diagnostic purposes or for assessing personality traits' [5]

A questionnaire is thus a device consisting of a series of questions dealing with some psychological, social or educational topics sent or given to individual or a group of individuals, with the object of obtaining data with regard to some problems under investigation.

3.5.2 Advantages of A Questionnaire –

1. The questionnaire as a tool of collecting the data has great potentialities when it is properly used.

2. It is easy to plan, construct & administer.

3. Group administration being permissible, it is capable of covering a large group at the same time.

4. Once the questionnaire is framed nicely, the investigator may ask anybody to administer it.

5. Questionnaire can be sent as well as gathered back by mail from the respondents who are scattered far & wide, contacting them personally would become a terrible job for the investigator.

6. It may be used as a preliminary tool for conducting in depth study.

7. Responses given by the subject being available in a written form, adds to the validity of responses.

3.5.3 Types of Questions in Questionnaire

1) Closed form or Restricted

2) Open form or Unrestricted.

1) Closed Form or Restricted – Questions that call for short, check mark responses are known as the closed form or restricted type questions.

2) Open form or Unrestricted – Questions that call for a free response in the respondents own words known as open form or Unrestricted type questions

3.5.4 Procedure of construction of Questionnaire in the present Study

For the present study questionnaires for Principals, Teachers, Lab Assistants & Librarians were constructed. Both closed and open type of questions were included in each questionnaire.

The questions were based on the teaching strategies adopted for Environment Education, the resources available at various Professional Education colleges, the difficulties faced by the teachers while teaching Environment Education etc.

1 Questionnaire for Principals / Heads of the Departments :

The questionnaire included the questions related to the resources available at various professional education courses for Environment Education. Three main questions with their subparts were asked in this concern

2. Questionnaire for Teachers teaching Environment Education.

This questionnaire included the questions related to teaching strategies used for Environment Education, the resources available, the

exchange of human resources among various professional education institutions, were asked. Questions were based on special training/Courses completed by them, lectures or other programmes organized in association with other NGO's/Institutes etc. Total 33 questions were included in the teachers questionnaire.

3. Questionnaire for Lab Assistants –

This questionnaire included the questions related to the laboratory resources available at various Professional Education colleges for Environment Education, their maintenance and exchange.

Total 12 questions were asked to the Lab Assistants.

4. Questionnaire for Librarians -

This questionnaire included the questions related to the book resources available & their exchange at various Professional Education colleges for Environment Education.

Total 5 questions were asked to the Librarians.

All the questionnaires were shown to the experts from each Professional Education colleges. The experts gave some important suggestions to improve the questionnaires.

Some suggestions were as follows.

1. Give Yes/No type of alternatives wherever necessary.
2. Give extra space for opinions or details.
3. Give any other option wherever necessary.
4. Give specific tables wherever necessary.
5. Include questions related to NGO's & field visits.
6. Include open ended questions.

According to above suggestions, questionnaires were reconstructed and finalised.

3.5.5 Interview –

Interview as a data gathering device involves the collection of data through direct verbal interaction between individuals. It is that device or tool where the subject gives the needed information in face to face relationship. It is a two way method that permits an exchange of ideas & information.

According to Banney & Hampleman, 'In every case, the interview is an exchange of ideas between two people in a face to face relationship carried on for a purpose & constructed or guided, in some degree, by one of the parties.'[6]

3.5.6 Advantages of the Interview –

1. It provides an opportunity to the interviewer to question thoroughly certain areas of inquiry.

2. The percentage of response is very much higher than in case of mailed questionnaire.

3. The interview permits grater depth of response which is not possible through any other means.

4. The interviewer is able to get the information about past, present as well as future.

5. The interview technique permits the exchange of ideas & information between the interviewer & the interviewee.

6. The interviewer being personally present to remove any doubt or suspicion regarding the nature of inquiry, the answers are not biased.

7. The information gathered through interviews has been found to be fairly reliable.

3.5.7 Limitations of the Interview -

1. An interview is a time consuming technique.

2. The reliability & validity of an interview depends mostly on the honesty of the interviewee.

3. The effectiveness of interview depends greatly upon the skill of the interviewer.

4. Technique of interview does not work well with shy people, deaf people & insane people.

5. The recording of data from an interview is full of difficulties.

3.5.8 Types of Interview –

1. Structured Interview – such interviews involve the use of a set of predetermined questions & of highly standardized techniques of recording.

2. Semi-structured Interview – Where the items are not structured rigidly & the interviewer has the freedom to alter & add questions.

3. Unstructured Interview – Characterised by a flexibility of approach to questioning.

4. Focussed Interview – It is meant to focus attention on the given experience of the respondent & it's effects.

5. Clinical Interview – It is concerned with broad underlying feelings or motivations or with the course of individual's life experience.

6. Non-directive Interview – The interviewer's function is simply to encourage the respondent to talk about the given topic with a bare minimum of direct questioning.

For present study semi - structured interview schedule was used for students from various Professional Education colleges.

As L.P. Agarwal mentions, 'a semi-structured interview schedule is one where the items are not structured rigidly and the interviewer has the freedom to alter and add questions or rearrange the items depending upon the nature of responses the interviewer is getting'.[7]

For present study, 5 students from each college, from each professional course were selected for interview. Questions related to teaching strategies, resources available in colleges, lectures of resource persons organized by colleges on Environment Education were asked to the students. The questions were framed & them shown to experts in the field of Professional Education colleges selected. As per their suggestions the modifications were made.

3.6 Sampling -

Sampling is the selection of some part of an aggregate or totality on the basis of which a judgement or inference about the aggregate or totality is made.

According to C.R.Kothari (1986) 'Sampling is the process of obtaining information about an entire population by examining only a part of it'.[8]

3.6.1 Importance of Sampling –

1. When the population is very large, it can be satisfactorily covered through sampling.
2. It saves a lot of time, energy and money.
3. When the data are unlimited, the use of this method is really useful.
4. When cent-percent accuracy is not required, the use of this techniques becomes inevitable.
5. When the units of an area are homogeneous, sampling technique is useful.

3.6.2 Methods of sampling –

A) Probability sampling -

    1. Simple Random Sampling

    2. Systematic Sampling

3. Stratified sampling .

4. Multistage sampling

5. Cluster sampling

B) Non-probability sampling

1. Convenience sampling

2. Purposive sampling

3. Quota sampling.

Sampling in the present study

Table No. 3

Sampling for selection of colleges

Sr.	Districts	Colleges of Education (B.Ed.)		College s of Engineering (B.E.)		Colleges of Law (LL.B)		Colleges of Medicine (M.B.B.S.)	
	Grantable (G) Non-Grantable(NG)	G	NG	G	NG	G	NG	G	NG
1	Kolhapur	1	2	0	1	1	0 1	1	0
2	Satara	0	2	1	0	0	1		1
3	Sangli	1	1	0	1	1	0	1	0
4	Total	2 out of 4	5 out of 10	1 out of 2	2 out of 4	2 out of 3	1 out of 3	2 out of 2	1 out of 3
	Total 16 colleges out of 32	7 Colleges out of 14		3 colleges out of 6		3 colleges out of 6		3 colleges out of 6	
	Sample in percentage	50%		50%		50%		50%	

Table No.4

Sampling of Teachers/Lab Assistant/Librarian/Students

Faculty / Faculty Member	College of Education (B.Ed.) (7 Colleges)	College of Engineering (B.E.) (3 colleges)	College of Law (LL.B.) 3 colleges	College of Medical (M.B.B.S.) 3 colleges	Total
Principal/HOD's (All)	7	3	3	3	16
Teachers (All Teaching EE or EE related subjects/components)	7	4	3	14	28
Lab Assistants (All)	-	3	-	3	06
Librarian's (All)	7	3	3	3	16
Students (5 students/College)	35	15	15	15	80

For the present study simple random sampling method was used. Colleges affiliated to shivaji University were selected from three districts (Kolhapur, Satara, Sangli). Grantable & Non-grantable colleges of each professional course from each district were selected randomly by lottery method. Total 16 colleges were selected as follows :

1) Colleges of Education (B.Ed.)
2) Colleges of Engineering (B.E.)
3) Colleges of Law (LL.B.)
4) Colleges of Medicine (M.B.B.S)

16 Principals/ HODs 28 teachers teaching EE or EE related subjects / components and 16 Librarians from all the 16 Professional Education colleges were included in the study. Six Lab Assistants from 6 colleges (03 from colleges of Engineering and 03 from colleges of Medicine) were included. There were no Lab Assistants in colleges of Education and colleges of Law.

Five students from each college were selected for interview by purposive sampling. The students available and willing to provide information were included in the study. Thus total 80 students were included in the sample.

Thus in this chapter researcher has discussed about the research methodology adopted. She has given information about the research method, tools of data collection & sampling.

In next chapter she has presented the analysis of the data.

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