

CHAPTER-IV

PLAN AND PROCEDURE

- 1) METHOD OF RESEARCH
- 2) RESEARCH DESIGN
 - a) Preparatory stage
 - b) Main study
- 3) METHOD OF ANALYSIS

PLAN-AND-PROCEDURE

1) METHOD OF RESEARCH :

The survey method is the most popular research design selected by most research workers. If the present study is to follow the survey method it is necessary to weigh the advantages and disadvantages of the method and see how best the present problem is tackled by the survey method and why the survey method is the only method suitable for the study.

In the research process the term 'Survey' refers to a way of making observations, where the indicator of variables are answers to questions presented either verbally or in writing. (Walizer M.H., Weinir P.L., 1978). "It is vaguely conceived of, as another term for public opinion studies." (Galtung Johan, 1967). Black J.A. and Champion D.J (1976) define survey as "specifications of procedures for gathering information about a large number of people by collecting information from a few of them." Survey is characterized by disciplined inquiry, requiring expertise, objectivity and careful execution.

Survey studies collect three types of information :

- i) of 'what exists' by studying and analysing important aspects of present situation.
- ii) of 'what we want' by clarifying goals and objectives possibly through a study of the conditions existing elsewhere or what experts consider to be desirable;

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

It is essential to know the advantages of the survey method.

Advantages :

1) Accumulation of information from individuals is possible at relatively low cost. Psychologists, Technologists, Marathi experts and students were contacted by mail. The information was thus readily available at low cost.

2) Generalizability to a larger population is more legitimate.

3) Unlike experimentation surveys are flexible. Data was collected with the use of variety of data collection tools. Like the RSCA, LEQ, UEQ, FORMAT which have been discussed under tools in the present chapter.

4) Survey sensitized the research to potential problems that were originally unanticipated or unknown.

5) Surveys may be used as good tools for verifying theories.

Therefore it may be stated that the survey method is the most suitable method for the present study.

II) RESEARCH-DESIGN :

The present study was conducted in two main stages namely

A) Preparatory stage.

B) Main Study.

A) Preparatory Stage :

The preparatory stage was carried out as a preliminary setting for carrying out the main study. The aims of the preparatory stage were two fold, namely - A-1. Selection of the problem, defining the meaning of each in reference to this study. A-2. Discussion of tools.

A-1. Selection of the problem -

This was accomplished by referring to various sources, namely related literature, previous studies done by other researchers, journals, text-books, and discussion with experts.

A-2. Tools - Discussion -

After selection of the problem for the study, the next step was to choose appropriate tools for the collection of data.

The following tools were prepared and used :

- 1) Language effectiveness questionnaire. (LEQ)
- 2) Utility effectiveness questionnaire. (UEQ)
- 3) Rating scale content analysis.(RSCA)
- 4)Formats.

The LEQ, UEQ, RSCA was constructed in Marathi, as Marathi was found to be the language universally followed by population under study.

1) The LEQ (Language Effectiveness Questionnaire)

The LEQ was required to find out the language effectiveness of the self-instructional material. The LEQ was constructed by the researcher for the Marathi subject experts. It consists of 31 questions about sentence structure, grammar, accuracy, punctuations, difficulty

level of the questions, decorative language, etc. of the self-instructional material.

2) The UEQ (Utility Effectiveness Questionnaire)

The UEQ was required to find out the utility effectiveness of the self-instructional material. The UEQ was constructed by the researcher for the B.Ed. students who passed the examination. It consists of 29 questions, 26 of which are about the internal aspects and only three questions refer to the external features of the booklets such as printing, size, grammar, sentence structure, guidance from teacher, qualities, explanation, evaluation etc.

3) The RSCA (Rating Scale Content Analysis)

The RSCA was required to find out the content coverage of the booklets. The RSCA was constructed by the researcher for the Psychology experts. It consists of 34 questions. Four of which refer to the internal features and the remaining 30 refer to the external features.

4) Formats

Researcher used the 11 standard formats given by the Yashwantrao Chavan Maharashtra Open University, Nashik (Appendix-D). The self-instructional material was prepared by the experts in 1986. To find out which format was used to prepare this material and if the used format was appropriate the 11 formats were mailed to the Technology experts.

B) The Main Study :

It consists of the following two parts :

- 1) Sample selection - sampling procedure.
- 2) Tools - Construction, standardization and scoring.

1) Sample selection -

A sample design is a plan for obtaining a sample from a given population. A reliable and appropriate sample is selected by researcher for this study. William G. Cochran (1959) while discussing the advantages of the sampling method in surveys, writes : In every branch of science we lack the resources to study more than a fragment of the phenomena that might advance our knowledge.

The selection of an adequate sample from the universe is an essential and important step in the conduct of the research. Since it is difficult to make a study on the whole population, it seemed convenient to select a sample from the population with the application and use of appropriate measures.

A selected sample should be representative of the whole population and should possess all its characteristics. If not so, the results obtained from the sample cannot be validly generalized. The proper sampling enhances the quality of dependability of the obtained results.

Random sampling is considered to be the best due to the fact that each element of the population has an equal chance of being selected and there remains no bias in selection of the elements of the population. The results based on such type of sampling can, therefore, be said to be valid for the whole population.

The random (Fox D.J.) sampling method was used to derive a representative sample from the population of B.Ed. students who appeared for the University examination. The random sample of 25 students who passed the B.Ed. examination in 1990-91 were taken as a appropriate sample.

Also for the selection of the Psychology, Language and Technology experts the purposive sampling method was used.

a) Sample : Psychology Experts

Purposive selection of five Psychology experts was made, having basic qualification of Masters Degree in Psychology or working in the field of Psychology. The profile of Psychology experts are given below:

TABLE-NO.1

PROFILE OF PSYCHOLOGY EXPERTS (APPENDIX-A)

Number	Qualification	Experience years
1	M.A., Ph.D.	19
2	M.A.	20
3	B.Sc., M.Ed.	30
4	M.A., M.Phil.	12
5	M.A.	1

Table No. 1 indicates the profile in terms of qualification and years of experience of the 5 Psychology experts.

b) Sample : Marathi Experts

Purposive selection of five Marathi subject experts was made, having basic qualification of Masters degree in Marathi. The profile of Marathi Experts are given below :

TABLE-NO.2
PROFILE OF MARATHI EXPERTS (Appendix-B)

Number	Qualification	Experience years
1	M.A.	1
2	M.A.,D.Ed.	16
3	M.A.,B.Ed.	25
4	M.A.,Ph.D.	29
5	M.A.,B.Ed.	10

Table No.2 shows the profile of the five Marathi experts varying in qualifications from M.A. to M.A.,Ph.D. having 1-29 years of teaching experience.

c) Sample : Technology Experts

Purposive selection of five technology experts was made i.e. who have written the self-instructional material for various courses such as B.Ed. course etc. The profile of the Technology experts are given below :

TABLE-NO.3**PROFILE OF TECHNOLOGY EXPERTS (Appendix-D)**

Number	Qualification	Experience years
1	M.A.,M.Ed.,LL.B.	15
2	B.Sc.,M.Ed.,Ph.D.	20
3	M.Com.,M.Ed.,M.Phil.	5
4	M.A.,M.Ed.,M.Phil.	9
5	M.A.,M.Ed.,M.Phil.	7

Table No.3 shows the profile of the five Technology experts.

The researcher has followed Fox D.(1969) sampling procedure. It will therefore be imperative to first study the process employed and then define the sample through this systematic process. Sample selection procedure (students) is given below :

Sample-Procedure :

Fox D.J. (1969) gives the procedure for selecting sample for educational research. According to him there are five steps in sampling process and there corresponding five levels of samples viz. (i) Universe, (ii) Population, (iii) The invited sample, (iv) Accepting sample and (v) Data producing sample.

a) Universe - Universe includes all possible respondents of a certain kind.

b) **Population** - It is that portion of universe to which a researcher has access.

c) **The invited sample** - It is defined as all elements of the population to which an invitation to participate in research is extended.

d) **The Accepting sample** - It is that portion of invited sample that accept the invitation and agrees to participate.

e) **The data producing sample** : It is defined as that portion of the accepting sample that actually produces data.

D) Sample - Students

Keeping in mind the sampling procedure as advocated by Fox D.J.(1969) the universe of the present sample is defined as the students who appeared for the B.Ed. distance education course.

Population - Sample for the present study are the students who have passed the B.Ed. distance education course.

The invited sample - Out of the passed students 30 students was selected as invited sample.

The accepting sample - The UEQ was administered to 30 students - only 25 formed the accepting sample who dutifully returned the UEQ.

The data producing sample - The researcher received back 25 UEQ on checking it was found that all 25 UEQ formed the data producing sample.

The profile of the students are given below :

TABLE No.4
PROFILE OF STUDENTS (Appendix-C)

Sr. No.	Graduates Experience			Post-graduate experience			Class obtained in B.Ed.		Total
	0 - 5 years	5 - 10 years	Above 10 years	0 - 5 years	5 - 10 years	Above 10 years	I	II	
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.					✓			✓	
2.				✓			✓		
3.	✓							✓	
4.	✓							✓	
5.					✓		✓		
6.					✓		✓		
7.					✓			✓	
8.	✓							✓	
9.					✓		✓		
10.	✓							✓	
11.	✓						✓		
12.					✓			✓	
13.				✓				✓	
14.			✓				✓		
15.					✓		✓		
16.						✓		✓	
17.					✓			✓	
18.					✓			✓	

TABLE No. 4 (Contd..)

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
19.				✓				✓	
20.					✓		✓		
21.	✓							✓	
22.					✓		✓		
23.				✓			✓		
24.						✓		✓	
25.					✓		✓		
Total	6	0	1	4	12	2	11	14	25

Table No. 4 shows the students profile. The study involved 6 graduates, 5 having 0-5 years teaching experience and only 1 having 10 and above years of experience. There were 18 post-graduate - 4 having 0-5 years teaching experience 12 having 5-10 years experience and 2 having above 10 years teaching experience. Of the 25 student sample 11 students achieved I Class in the B.Ed. examination and 14 got a IInd Class.

2) Tools -

Having selected and studied the sample for the study it is essential to study the following tools, used in the present research.

- 1) The Rating Scale Content Analysis - RSCA.
- 2) The Language Effectiveness Questionnaire - LEQ.
- 3) The Utility Effectiveness Questionnaire -UEQ.
- 4) Formats.

Tool No.1 - The Rating Scale Content Analysis (RSCA)

A rating scale means the judgement of one person or persons by another. 'Rating is, in essence directed observation'.

"Rating is a term applied to expression of opinion or judgement regarding some situation, object or character. Opinions are usually expressed on a scale of values."

- A.S.Bones.

A rating scale is, therefore, a method by which we systematize the expression of opinion concerning a trait. The ratings may be done by parents, teachers, a board of interviewers and judges or by one's self as well. The two characteristics of a rating scale are (a) description of the characteristics to be rated and (b) some method by which the quality frequency or importance of each item to be rated is given.

Keeping in mind the general characteristics, advantages and limitations of a rating scale, the researcher found it to be the most suitable and effective tool for collecting data from the Psychology experts.

1) Construction of Rating Scale (RSCA) :

In order to find out the frequency in occurrence of accurate content coverage a rating scale for Psychology experts was constructed. Each of the aspects under study was rated on a five point scale marked 1, 2, 3, 4,5 with specific ranges of grades allotted for each scale. A copy of rating scale is attached in Appendix-A.

The rating scales content validity was established by taking experts opinions. (Appendix-E). Then it was ready for administration to the selected sample. The aspects of RSCA was rated on five point

scale as follows :

Grades :

1	2	3	4	5
1) Excellent	Good	Average	Below average	Poor
2) 76-100%	51-75%	26-50%	1-25%	0%
3) Always	Frequently	Occasionally	Rarely	Never

Grade 1 indicates higher appropriateness of the aspect and grade 5 indicates the lower appropriateness of the aspect. It was arranged as high to low level. The 34 aspects evaluated in the RSCA are divided into two groups as internal features and external features of the SIM.

The aspects are given below:

a) External Features :

1. Title
2. Paper
3. Binding
4. Printing
5. Size and Page.

b) Internal Features :

i) Language factors -

1. Sentence structure
2. Punctuation
3. Grammar
4. Information
5. Language

ii) Psychological Factors -

- 1. Attention**
- 2. Interest**
- 3. Domains**
- 4. Students progress**
- 5. Quality development**
- 6. Personality development**
- 7. Application**
- 8. Skill development**

iii) Evaluation aspects -

- 1. Individual difference**
- 2. Evaluation**
- 3. Scope and limit**
- 4. Examination**
- 5. Method of questioning**
- 6. Psychological principles**
- 7. Information**
- 8. Teaching aids**
- 9. Familiar examples**
- 10. Guidance**
- 11. Learning experiences**
- 12. Reinforcement**
- 13. Question and content**
- 14. Scope**
- 15. Objectives**
- 16. Difficulty level.**

2) Method of Data Collection :

The RSCA was mailed to the sample selected by the researcher consisting of five psychology experts. (Appendix-A). They were collected as and when completed.

3) Scoring of the Rating Scale :

To facilitate scoring of the rating scale, the five point scale were allotted 1,2,3,4,5 point respectively. By tick marking the point 1 of the aspects indicate the cent percent appropriateness. Descriptions of different degrees of qualities are arranged along a line from high to low or otherwise and this forms a scale.

Tool No. 2 : Questionnaire (LEQ and UEQ)

"In general the word questionnaire refers to a device for securing answers to questions by using a form which the respondent fills in himself".

- Good and Hatt (1952)

Barr, Davis and Johnson (1953) define questionnaire as "a systematic compilation of questions that are submitted to a sampling of population from which information is desired."

The general category of inquiry forms includes data gathering instruments through which respondents answer questions or respond to statements in writing. A questionnaire is used when factual information is desired. Keeping in mind the general characteristics, advantages and limitations of a questionnaire, the researcher found it to be the most suitable and effective tool for collecting data from the Marathi

experts and B.Ed. students regarding language effectiveness and utility of the SIM.

1) Construction of questionnaire :

Keeping in mind the characteristics of a good questionnaire, the researcher constructed two questionnaires one for Marathi experts for language effectiveness called the language effectiveness questionnaire (LEQ) and one for students for utility of the questionnaire (UEQ). The questionnaires standardised by the subject experts is attached as Appendix-E. After making the suggested changes and knowing that none of the questions were unclear or unambiguous and were fit to draw the desired information from the respondents, they were then administered to the selected sample.

1) Language Effectiveness Questionnaire (LEQ) :

It consists of 31 questions. Each of the aspect under study was graded in three grades as 'yes' 'sometimes' and 'no'. Grade 'yes' indicates higher appropriateness of the aspect and 'no' indicates unappropriateness of the aspect. The aspects in LEQ are given below :

1. Title
2. Scope
3. Previous knowledge
4. Familiar examples
5. Explanation
6. Language
7. Structure
8. Improper words
9. Sentence

10. Grammar
11. Paragraph length
12. Hard words
13. Difficulty level
14. Communication
15. Punctuations
16. Objectives
17. Question and content
18. Memory
19. Scope and limit
20. Thinkability of questions
21. Educational background and thinking ability
22. Error free
23. Mistakes
24. Sequence
25. Conjunction
26. Flowery language
27. Main points
28. Objective questions
29. Sub points
30. Questions
31. Essay type examination

ii) Utility Effectiveness Questionnaire (UEQ)

It consists of 29 questions. Each of the aspect under study was graded in 3 grades as 1, 2, 3.

Grades :

	1	2	3
a)	Good	Average	Poor
b)	Yes	Sometimes	No

The grade 1 indicates higher appropriateness and grade 3 indicates lower appropriateness of the aspect. The aspects in UEQ are given below :

i) External Feature :

- 1. Paper**
- 2. Binding**
- 3. Printing**

ii) Internal Feature :

- 1. Scope**
- 2. Structure**
- 3. Sentence structure**
- 4. Grammar**
- 5. Unessential information**
- 6. Application**
- 7. Teaching aids**
- 8. Familiar examples**
- 9. Attention**
- 10. Skill development**
- 11. Guidance**
- 12. Learning experience**
- 13. Method of asking questions**
- 14. Examination type**

15. Progress
16. Quality development
17. Difficulty level
18. Punctuations
19. Scope and limit
20. Previous knowledge
21. Explanation
22. Information
23. Improper words
24. Thinkable questions
25. Post test
26. Main points

2) Method of data collection :

The LEQ's was mailed to the sample selected by the researcher consisting of five Marathi experts (Appendix-B). The UEQ's was mailed to the sample selected by the researcher consisting of 30 students (Appendix-C) who have used this material.

3) Scoring of rating scale :

To facilitate scoring of the questionnaires, the 3 grades allotted were 'yes', 'sometmes' and 'no' or Good, Average, Poor. The grades 'good' and 'yes' indicates cent percent appropriateness of the aspects i.e. gradation is from high to low.

Tool No. 3 - Formats :

A format is a General Plan or Arrangement. Any continuous piece of writing may be considered a text. Formats in which texts can be presented differ according to the function the text is expected to serve. The Format is expected to increase the effectiveness of the text. We are all concerned with the production of distance education study texts. The word 'text' in this context has a more specialized meaning. A distance education study text is an INSTRUCTIONAL TEXT. For best results, care should be taken not only that students read to learn but also that 'text' has been written to teach. An instructional text is a text that has been written with the specific purpose of teaching. Writers of distance education instructional texts have attempted to create a text that can teach using a number of devices and formats. The 11 formats of self-instructional material have been prepared by various Open University in and outside India. Appendix-D gives the features of the 11 formats along with the names of the open universities each one is associated with. The aspects of each of the formats is given below :

Format 1 : Features are as follows :

1. Introduction
2. Exposition
 - a) Explanation
 - b) Quotations
 - c) Summaries
 - d) Exercise
 - e) Answers to the exercises
 - f) Questions for discussion and revision.
3. Index

Format 2 : Features are given below :

- 1. Introduction**
- 2. Statement of Aims and Objectives**
- 3. Materials before you**
- 4. Exposition**
 - a) Charts, diagrams, pictures**
 - b) Objective type exercises**
 - c) Answers to exercises**
 - d) Reading of related text**
- 5. A Concluding Section.**

Format 3 : Features are given below :

- 1) List of terms and concepts**
- 2) Introductory study comments**
- 3) Exposition**
 - a) Charts, Diagrams, Pictures**
 - b) Margin Topics**
 - c) In Text Questions(ITQ)**
 - d) Self-assesment Questions (SAQ)**
- 4) Aims and Objectives**
- 5) Activities : Home Experiment Kits**
- 6) ITQ, SAQ - Answers and comments.**

Format 5 : Features are given below :

- 1) Introduction**
- 2) How to approach this book**
- 3) Key questions**

- 4) Resource File
- 5) Exposition
 - a) Aims
 - b) Objectives
 - c) Explanation
 - d) Read - The Prescribed - Text Directions
 - e) Prescribed Reading Summary
 - f) Charts, diagrams, pictures
 - g) In text questions
 - h) Pre-text questions

Format 5 : Features are given below :

- 1) Intention
- 2) Presentation or Exposition
- 3) Investigaton
- 4) Response Matrix
- 5) Discussion
- 6) View points

Format 6 : Features are given below :

- 1) Structure
- 2) Objectives
- 3) Introduction
- 4) Presentation
- 5) In-text questions
- 6) Summary
- 7) Key words
- 8) Some useful books
- 9) Answers to check your progress exercises

Format 7 : Features are given below :

- 1) Structure
- 2) Introduction
- 3) Objectives
- 4) Presentation
- 5) Self-assessment questions
- 6) Summary
- 7) Terminal questions
- 8) Answers to SAQ and Terminal questions

Format 8 : Features are given below :

- 1) Objectives
- 2) Presentation
- 3) Margin Summary
- 4) In text questions
- 5) Assignment
- 6) Summary

Format 9 : Features are given below :

- 1) Pre-test
- 2) Introduction
- 3) Objectives
- 4) Presentation

Format 10 : Features are given below :

- 1) Objectives**
- 2) Presentation**
- 3) In text questions (ITQ)**
- 4) Answers to ITQ.**

Format 11 : Features are given below :

- 1) Contents**
- 2) Presentation**
- 3) In text questions**
- 4) Answers**
- 5) Assignments**
- 6) Tasks**
- 7) Summary.**

iii) Method of Analysis of Data :

The data collected by means of various tools needs to be systematized through the process of careful editing, thoughtful classification and painstaking and accurate tabulation. Analysis of data means studying the tabulated material in order to determine inherent facts or meanings.

The statistical method used for analysis was calculating the frequency distribution (usually in percentages) of items under study. For convenience analysis the researcher divided the two parts of the questions as internal features and external features of the self-instructional material. The data was analysed from two different aspects (i) external features of the text (ii) internal features of the text.

The internal features were studied under the sub-units such as language factor, psychological factor, utility factors for each of the tools different tables were constructed. And from the reactions of the experts and the students researcher made the observations and interpreted the data.

Having discussed the method of analysis of data the Analysis and Interpretation of data follows in Chapter-V.