

CHAPTER III
RESEARCH
PROCEDURE

III. RESEARCH PROCEDURE

3.1 Introduction

3.2 Experimental Method

3.2.1 Experimental Designs

3.2.2 Pretest – Posttest equivalent Group Design

3.3 Validity of the Design used.

3.3.1 Controls for Internal Validity

3.3.1.1 History

3.3.1.2 Maturation

3.3.1.3 Testing

3.3.1.4 Instrumentation

3.3.1.5 Interactions

3.3.1.6 Variables

3.4 Preparation for the Experiment

3.4.1 Consent of the Authorities concerned

3.4.2 Testing Material

3.4.3 Support Material Needed

3.4.4 Try out

3.4.5 Determination of the suitable period for the experiment

3.5 Sample and sampling procedure

3.6 The conduct of the Experiment

3.7 Summary

CHAPTER III

RESEARCH PROCEDURE

3.1 Introduction

The researcher for conducting experiment selected D. K. Shinde College of Education Gadhinglaj where she is working as a lecturer in English methodology.

The previous chapter deals with a brief account of related literature, which points out that the problem chosen by the researcher has roots in existing literature but further exploration is needed in this field.

This chapter deals with the procedure used by the investigator to know the effect of measures to improve student teachers speech abilities.

The purpose of the study

The purpose of the study was to find out the effect of measures to improve student teachers speech abilities. Basically to ensure such valid causal inferences and verified functional relationship experimental study is the best method of educational research.

3.2 The Experimental Method

The experimental studies enable to improve the conditions and arrive at more precise results Cambell and Stanley (1963) are of the opinion that the experiment is the only means for setting disputes regarding educational practice the only way of verifying educational improvements.

Experimental evidence is the most solid evidence. We can obtain as to the functional validity of new programme or plan. This view is also supported by Ennis. He says “It is legitimate and essential for educational researchers to have causal concerns and to pursue questions about what brings about and what has brought about matters of educational significance.

However the researcher has to think of four essential characteristics of experimental research. They are –

1. Control
2. Manipulation
3. Observation
4. Replication

The experimental research is the description and analysis of what will occur under carefully controlled conditions.

Experimentation is the name given to the type of educational research in which the researcher investigate the educative research in factors to which child or group of children is subjected during the period of inquiry and observes the resulting achievement.

Experimental research whether conducted in a classroom or laboratory involves an attempt to control all essential factors save a single variable which is manipulated with a view to determine and measure the effect of its operation. Obviously this procedure is distinctly different from the historical and survey methods. Despite its scientific rigour experimentation is only an aspect of scientific method for the scientific method involves a great number of activities of which experimentation is simply an important form. The purpose of experimentation is to derive verified, functional relationship among phenomena under controlled conditions or more simply to identify the condition underlying the occurrence of a given phenomenon from the operational point of view, the variation in the dependent variable in order to study changes in the dependent variable under controlled conditions. The experiment is generally regarded as the most sophisticated research method for testing hypothesis.

Undoubtedly once again it may be stated that experimentation is the most scientifically sophisticated research method. It is defined as observation under controlled conditions. It studies observable changes that take place in order to establish a cause and effect relationship. It is the description and analysis of “What will be” “what will occur” or what can be made to occur under carefully controlled conditions. Experimentation thus consists deliberate and controlled modification of the condition determining an event and in the observation and interpretation of the changes that occur in the event itself. Experimenters deliberately and systematically manipulate certain stimuli or behaviour of the subject. They are also aware of the factors that could influence the outcome and remove or control them in such a way that they can establish a logical association between manipulated factors and observed effects. When engages in experimental research one does not merely describe a condition determine the status of something or chronicle post events. Instead of confining to the activities of observing and describing what exists, one deliberately manipulates certain stimuli or behaviour of the subject. They are also aware of two factors that could influence the outcome and remove or control then in such a way that they can establish

alogical association between manipulated factors and observed effects, when engages in experimental research one does not merely describe a condition determine the status of something or chronicle past events instead of confining to the activities of observing and describing what exists, one deliberately manipulates certain factors under highly controlled conditions to ascertain how and why particular condition or event occurs.

According to Traverse, experimentation may occur within the laboratory or outside it. Walter R. Borg thinks that experiment is the ultimate form of research design. According to Jhon W. Best experimental research is the description and analysis of what will be or what will occur under carefully controlled conditions. George G. Mouley describes this method as a technique of deliberately staging a situation designed to force nature to provide a 'Yes' or 'No' answer to any specific hypotheses concerning the phenomenon under discussion.

In the present study the researcher has to investigate the effect of measures to improve student teachers speech abilities. Hence this method best suits the purpose.

3.2.1 Experimental Designs

There are three types of Experimental Designs

1. The post test only equivalent group design.
2. The pretest posttest equivalent groups design.
3. The Solomon four group design.

The sources of invalidity are classified in two classes i.e. internal and external threats to validity.

All the three experimental designs control all the threats to internal validity.

In all the designs interaction of testing and treatment is controlled and interaction of selection and reactive arrangement with the treatment are sources of concern. Although Solomon four group design is very effective research design. It requires four groups. Hence practically it is a difficulty of feasibility and convenience. This is not the case with pretest posttest equivalent group design.

Therefore considering all the merits of pretest posttest equivalent group design the researcher decided to select the same for her study.

3.2.2 Pretest posttest equivalent group design

This is also known as equivalent group method. It is designed to overcome certain difficulties encountered in the group design. Here the relative effects of two treatments are compared on the basis of two groups which are equated in all relevant aspects. The second group which is called the control group, serves as a reference from which comparison made. This is essentially the implementation of Mill's canon of difference. In an educational experiment, the groups being compared generally equated on age, IQ, motivation, sex, general scholarship, general background and any other factor considered relevant to the problem under investigation. After equating the groups the investigator introduces an independent variable to the experimental group and allows the control group to carry on in customary manner. The control group receives no treatment and the other group receives the experimental treatment. After a reasonable interval of time the difference between the two groups provides a measure of effect of the independent variable. The basic design of parallel group experimentation might be presented as follows.

Experimental	Control
1. Pretest	Pretest
2. Experimental Factor	Control Factor
3. Final Test	Final Test

The procedure of equating the group

1. In order to equate the group student teachers marks obtained at degree level as well as CET exam were considered.
(Appendix-A)
2. Further the researcher also constructed a test based on the student teachers basic knowledge of English pronunciation 't' test was used to see the student teachers performance.
(Appendix-B)

Validity of the design used

Careful attempt has been made in this study to control the sources of invalidity using appropriate techniques.

3.3.1 Controls for internal validity

Campbell and Stanley identified the following extraneous variables which functions as the sources of invalidity.

1. HISTORY – Refers to events occurring in the environment at the sometime that the experimental variable is being tested. Specifically materials conditions and procedure used within the

experiment except of the variables manipulated must be identical. As a part of design selected control group was located which took care of history.

2. MATURATION – Refers to the processes of change within the experimental subjects as fatigue, hunger loss of interest. The changes are biological and psychological from within and external sources as location duration of experiment etc.

The duration of experiment was for three months because the feedback was one of the influential treatment to be given to the experimental group. It was based on student teachers practice teaching lessons. Hence there was no other alternative to shorten the duration.

Though the period was lengthy the trainees worked for one hour everyday. The discussion made in that hour helped and made the students aware of their problem and solutions on it. Which was interesting hence, there was no problem of fatigue or loss of interest.

The control group was set and also had the same maturational and developmental experience. thus maturation was controlled.

3. **TESTING** – Testing refers to the effects of taking a pretest on posttest performance of individuals. Though pretest was administered to the subject the test was not same. The content was changed so there was no effect of pretest on student teachers performance.
4. **INSTRUMENTATION** – Instrumentation refers to changes that occur in the measurement or observation procedures during an experiment changes may occur in raters or in the basis of rating from one group to another or testing conditions.
5. **INTERACTION** – Student teacher observed each others lessons. So students have interactions after actual teaching. Researcher has set the control group thus most of the combined sources of invalidity of selection and maturation were controlled.
6. **VARIABLES** – Variables considered in this study are of three types
 1. Independent Variables
 2. Dependent Variables
 3. Attributes Variables

Independent Variables –

They are measured manipulated to determine the relationship and they can affect another variables. The independent variables in the present study were listening to-

1. Cassettes
2. Phonetic drills
3. Reading exercises
4. Feedback after practice lessons etc.

Dependent variables

It is a response variables or output. It is measured to determine the effect of the independent variable. The dependent variables were as follows.

1. Student teachers achievement
2. Accuracy in pronunciation
3. Fluency in speech

3.4 Preparation For The Experiment

The researcher fixed an experimental method for study. After fixing the proper experimental design, necessary preparation required for the conduct of the experiment was made. It included the following points.

1. Consent of the authorities concerned
2. Support material needed
3. Testing material tools
4. Try out
5. Determination of the suitable period for the experiment
6. The time schedule of the experiment.

3.4.1 Consent of the Authorities Concerned

Prior to the conduct of the experiment the permission of the authorities was sought for.

A) The Principal D. K. Shinde College of Education,
Gadhinglaj

The entire plan of the experiment was discussed with the principal. The problem regarding provision for the rooms, duration of the programme collaboration of the other staff needed, the number of trainees involved in the experiment etc. were all discussed. The principal was requested kindly to make available the accommodation and resources needed. He heartily gave his consent.

B) The Principal, Rukadi College of Education, Rukadi as another twenty students were needed for the experiment which

were selected from Rukadi College so his consent was also required. The researcher discussed the entire plan with the principal. He too gave his consent.

3.4.2 Testing Material – Tools: Description of Tool

1. Test for pronunciation
2. Test for fluency in speech
3. Test for group discussion

1) The first test was related to stress on correct syllables.

The researcher prepared a thirty two words test of stress on different syllables of a word.

2) Test for Intonation – The researcher prepared twenty sentences test for proper intonation. The sentences consisting of different types so that researcher could find the perfect tone pronounced by the student teachers.

3) a. Test for Fluency in Speech – This test was different from the above the researcher prepared twenty subjects and distributed among the trainees by lottery method. The each student had to give a speech of five minutes on the subject which he / she got.

b. The second test for fluency was group discussion. Topics selected for the test were from syllabus. Such as teaching of prose poetry etc.

4) While preparing these tests the researcher took recommendations from guide and lecturers in English methodology from different colleges of education.

3.4.3 Support Material Needed

The test used consisted different words from VIII to X standards textbooks. Again the sentences were selected from VIII and IX standards textbooks. The subjects selected for speech were from their daily life for the test in fluency in speech.

For reading exercises cassette of VIII standard by Balchitrawani was used. For Phonetic Drills books on English methodology were used. Again the feedback for practice lessons books on grammar and different methods of teaching English were used by the researcher.

3.4.4 Try Out

After preparation of the support material and an observation tool, it was tried out on ten student teachers from Kagal College of Education, who were not involved in the experiment. After using that test on this group, interviews of the student teachers were conducted.

Their experiences were controlled and accordingly taking the help of experts of this field specific improvements were done.

From the tryout the required time for using the tests was estimated and the instructions to be given were finalized. Final tests were cyclostyled and required number of copies were kept ready for the experiment.

3.4.5 Determination of the suitable period for the experiment

It was decided to conduct the experiment from the month of September of the academic year 2004-05 because the feedback for practice lessons was one of the treatments given to the experimental group it was necessary to start in the first term. Hence the first term was preferred. This period was most suitable for effective implementation of the experiment.

3.5 Sample and Sampling Procedure

Sampling procedure involves a number of considerations, which must be understood if adequate results are to be obtained most of the educational phenomenon consists of large number of units. Some populations are very large. So their study would be expensive in terms of time effort money and man power. Majority of the researches

in teacher education were conducted with a limited number of students.

Fox D. J. (1969) has given five steps in a sampling process namely.

- a) Universe – Includes all possible respondents of a certain kind all colleges of education with similar geographical, physical and academic conditions.
- b) Population – Portion of the universe to which the research has access.
- c) The invited sample – All elements of population to which the research has access, invitation to participate in research is extended.
- d) The accepting sample – It is that portion of invited sample that accepts the invitations and agree to participate.
- e) The data producing sample – The portion of the accepted sample that actually includes data.

Taking into consideration the above points the data was selected as. The universe for the study was defined as Marathi medium in experienced male and female student teachers. It means

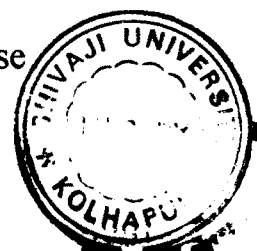
that the students who constituted the universe had at least following common features.

1. They are minimum graduates in their qualifications
2. They have opted for teacher training course.
3. They don't have any experience prior to their training.
4. They have opted for teaching practice to be conducted through Marathi medium.

The universe has physical boundaries of the state of Maharashtra and it comes in existence through college of education in Maharashtra.

For the present study, the researcher selected the population from D. K. Shinde College of Education Gadhinglaj as an experimental group. (Appendix-E) For the reason of convenience and feasibility as she is one of the faculty members of the college. The population as a control group was selected from Rukadi College of Education Rukadi. (Appendix-F) Both the colleges are affiliated to Shivaji University, Kolhapur. The medium of instruction of these colleges is Marathi.

The size of the sample was about twenty percent from each college which came out to be 40. The invitation was given to these



student teachers. The participants accepted the invitation as the researcher appealed to them to share an opportunity to learn more about the language. Further, the trainees were made aware that it would be a part of their training programme and not any additional work. Thus, the selected forty students constituted the accepting sample.

There was no loss in the number of participant students teachers during the experiment so the whole accepting sample i.e. student teachers become the data producing sample for the study.

Rationale in the Allotment of Treatment to Groups

For the sake of convenience and feasibility the researcher had decided to select the sample / population of D. K. Shinde College of Education as an experimental group and student teachers from Rukadi college were selected as control group.

The data was selected from the data producing sample using the tool described in 3.5.2.

3.6 The Conduct Of The Experiment

Researcher prepared the timetable as follows

Sr No	Tests and Programmes Treatments	Lectures	Days Period
1.	a. Pretest on word stress	Instructions to pronounce these words	1
	b. Generalization of errors	Discussion on errors committed by S.T.	1
	c. Remedial Programme	Concept of stress, different types of stress etc.	1
	d. Practice of different words	-	1
	e. Posttest on word stress	Instructions to pronounce these words	1
2.	a. Pretest on sentence stress	Instructions to student teachers to pronounce the sentences	1
	b. Generalization of the errors	Discussion on errors committed by student teachers.	1
	c. Remedial Programme	Concept of sentence stress on different important words from the sentences etc.	1
	d. Practice of different sentences	-	1
	e. Practice of sound system	Instructions to pronounce the phonemes/sounds in English	1
	f. Listening to the cassettes of VIII standard contents of English text	Instructions to listen the cassettes properly.	1
	g. Posttest on sentence stress	Instructions to pronounce the sentence	1

Sr No	Tests and Programmes Treatments	Lectures	Days Period
3.	a. Pretest on fluency in speech (of ten students)	Instructions in respect of good speech.	1
	b. Pretest of remaining ten students	Instructions in respect of good speech	1
	c. Generalization of errors	Discussion on errors committed by student teachers.	1
	d. -	Lecture on tenses and construction of sentences	1
	e. Posttest on fluency in speech	Instructions to deliver speech	1
4.	a. Pretest on group discussion	Instructions to participate in the group discussion	1
	b. Group discussion of three groups	-	1
	c. Group discussion of remaining two groups	-	1
	d. Generalization of errors	Discussion on errors committed by S.T.	1
	e. Posttest on fluency in speech	Instructions to participate in the group discussion.	1
		Total	21

The researcher provided a timetable to the co-educator to complete concerned units which was closely related to the researchers timetable.

The Conduct Of Experiment In Detail

1. Pretest on word stress

A test of twenty words was prepared and conducted on both the groups. The words were selected from VIII and IX standards text book. It was a mixed test having a stress on the first syllable in a word

of two syllables. A word with two syllables with stress on both. Words of three syllables with stress on first syllable, with stress on second syllable and stress on third syllable and lastly words of four syllables having a stress on last but one.

On the first day of the experiment, student teachers were asked to pronounce these words. Instructions in the beginning about test^{the} were given by the researcher. After completion of the test the areas of errors were located.

The researcher found the errors in student teachers pronunciation as follows –

1. Maximum students put stress on the first syllable of each word.
2. A few student teachers could not pronounce the words properly. So there was no question of putting stress on proper syllable.
3. Very few student teachers could pronounce the words properly.

After locating the areas of errors on the third day researcher delivered a lecture on the concept of stress. In which she explained

how to put stress marks on a word of two or three syllables and four syllables (Lecture note is enclosed in Appendix-G)

On the fourth day the practice of twenty words were taken by experimental group. After completion of this practice, posttest was conducted on both groups. The test was a mixed test consisting of different words. The statistical analysis of both the groups was done.(Appendix-H)

2. Sentence stress

This was the second test conducted by the researcher on both groups. For control group researcher asked to the co-educator to conduct the pretest.

This pretest was stress on different words in a given sentences, in this test the sentences of different types were consisted. Such as assertive, interrogative sentences, imperative sentences and exclamatory sentences. (Appendix-I)

On the first day of the week student teachers were asked to pronounce these sentences. After completion of this test researcher located the areas of errors. She found the errors as follows –

1. Student teachers put stress on noun and sometimes on verbs in the given sentences only.

2. Student teachers did not pronounce the words properly i.e. they had a neutral tone.
3. Student teachers did not add emphasis on adjectives main verbs and adverbs etc.

On the second day of the test the researcher delivered the lecture on the concept of sentence stress. In which she explained how to put stress on nouns, verbs, adverbs and adjectives in the sentences (The synopsis of lecture note is enclosed in Appendix-J)

To improve student teachers reading ability the researcher provided phonetic drills to the experimental group. The student teachers practiced the sound system. (Appendix-K)

Again the treatment of listening to cassettes of VIII standards English text to listen provided. So that they can understand the intonation pattern. With this, the researcher delivered a lecture on the concept of intonation (A lecture note is enclosed in Appendix-K)

On the fourth day posttest on sentence stress was conducted.(Appendix-L)

3. Test on fluency in speech

The pretest was conducted on both the groups. The nature of the test was as follows –

The student teachers had to talk for five minutes on a given subject. These subjects were selected after the discussion with the guide and other faculty members. The subjects were related to their day to day life. These subjects were provided to the student teachers by lottery method four days earlier from the day of test (list of subjects is enclosed in Appendix-M)

On the first day of the test ten student teachers' speeches were conducted to test the knowledge of their language 5 points rating scale was prepared and statistical analysis was done.

On the second day remaining ten student teachers speeches were conducted. In the control group the same procedure was followed.

On the third day the areas of errors were located. The student teachers committed the errors in the following areas.

1. Mistakes in the construction of sentences.
2. Mistake in use of tenses.
3. Lack of desired physical movements.
4. Mistakes in using pauses.
5. Mistakes in using correct examples.
6. Mistakes in giving weightage to main points etc.

On the 4th day the lecture on tense and constructions of sentences were delivered by the researcher. (The synopsis is enclosed in Appendix-N)

On the fifth day the posttest was conducted on both groups. The subjects were exchanged by student teachers and speeches were given. The statistical analysis was done of these tests of both the groups.

4. Test on group discussion

To have fluency in speech alongwith desired components researcher conducted the fourth pretest on both the groups. Which was in the form of group discussion. The topics for group discussion were selected from the syllabus of English methodology. (List is enclosed in Appendix-O)

To conduct this test student teachers were divided into the groups of four in each. The subjects were provided to these groups with lottery method. The group leader was chosen to direct co-operation within the group and to encourage the group.

Sufficient time was provided to discuss and analyse the problem. The researcher found following errors.

1. Only few student teachers were participating in the group discussion.

2. Maximum student teachers were accepting the ideas passively.
3. Relevant facts were not considered.
4. Sometimes there was a breakdown in discipline and non-co-operation within the groups.

On the third day a lecture on the concept of the group discussion was delivered in which logical plan of attacking a problem, facts to be considered etc. were the points discussed. After that discussion on queries was done. (Lecture Note is enclosed in Appendix-P)

On the fourth day the posttest was conducted. The student teachers from the previous groups were changed and new groups were formed sufficient time was provided to discuss the problem.

To check the performance of the student teachers five point rating scale was prepared and statistical analysis was done.

Alongwith all above tests and treatments the feedback on practice lessons was given according to their practice lessons consisting variety of contents such as grammar items, teaching of prose, poetry and different compositions such as oral and written.

In this way the experiment was conducted.

3.7 Summary -

Experimental study is the best method of educational research to ensure valid causal references and verified functional relationships. Amongst the true experimental designs. Pretest posttest equivalent group design controls all threats of external validity. Hence it was selected for the present study.

The first section of this chapter deals the preparatory stage of the experiment which contains consent of authorities support material needed, tryout, determination of the period, orientation of the observes and the time schedule of the experiment.

The second section shows sampling procedure, adequate sample size and group formation. The next section gives information about the data producing tools employed in the study.