CHAPTER III

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III.1. Introduction

For the successful conduct of any research, suitable methodology with specific operational steps and well constructed tools are necessary. The present study, which aims at finding the impact of media on developing teaching competency of student-teachers has been designed as an Experimental study. The details of the various steps followed in the experiment are discussed in this chapter.

III.2. The Research Design

To study the impact of training through media as compared to the conventional method, the investigator adopted the 'Two group Experimental Design' where the two groups were treated with two different instructional techniques assigned at random.

The research design covered three phases:

i) Software Development

ii) Selection of the Sample

iii) Experimentation.
The software for training through video was developed by the investigator. The cluster sampling technique was followed in the selection of the sample. The sample consisted of student-teachers selected from two colleges of education. From each college forty trainees were selected.

III.3. Development of the Tools

III.3.a. Development of the Software for Video

The development of Video programme passed through eight stages. The stages suggested by Lysaught and Williams (1968) for developing media materials were used for the development of Video Programme. The stages in the development of Video programme are as follows:

1. Selection of the Topic
2. Defining Entry Behaviour
3. Defining Terminal Behaviour
4. Content Analysis
5. Script Writing
6. Shooting
7. Editing
8. Initial Testing and Revision
9. Validation.
III.3.a.i. Selection of the Topic

An analysis of the tasks in terms of the stimuli required to be presented and the kinds of responses to be evoked from the learners is essential before a final decision is taken whether a particular topic can be programmed. In principle, all behaviours can be programmed. But the devices which can produce different kinds of stimuli and the devices which enable a learner to record his responses may not be available to all programmers or learners. Under these circumstances the decision regarding selection of the topic had to be taken keeping in view both task analysis and feasibility of the available devices.

The investigator constituted a panel of experts viz., the 'jury' consisting of an Instructional Designer, Two Content Specialists and a Media Specialist. The instructional designer is a Professor and Head in the University Department of Educational Technology. The content specialists have many years of teaching experience in the field of teacher education. Based on their suggestion, 'the method of teaching English prose for Comprehension' was selected for the experiment. Together with the help of the instructional designer and the content specialists, the investigator prepared a detailed topic network for the chosen topic.
III.3.a.ii. Defining Entry Behaviour

After the selection of the topic, it is essential to state clearly the various definition and assumptions that would be basic to learn the content. Fry (1963), asserting the importance of previous learning, says, 'previous knowledge influences learning even though the previous knowledge is only vaguely related to the new knowledge being required.' (page 2)

In this study, at the beginning of the experiment, the student teachers were expected

i) to be familiar with the objectives of teaching English and their related specifications;

ii) to know the various constituents of English such as prose, poetry, grammar, composition and non-detailed study;

iii) to know the general format of lesson-plan.
III.3.a.iii. Defining Terminal Behaviour

Framing of the Terminal Behaviour is the most important step in the construction of a software. It suggests where the trainee will be at the end of the instructional process and it is the task of the programme to take the trainee from the 'Entry' behaviour to the 'Terminal' behaviour. Since the success of the programmes lies in the attainability of these behaviours, the investigator decided upon the specific behaviours that the trainees are expected to perform at the end in consultation with the Experts' Committee. They are given below.

At the end of the experiment, the trainees were expected to

a) point out the various components of prose-teaching, x

b) write a lesson plan for prose teaching for comprehension, and x

c) teach English prose for comprehension effectively.
III.3.a.iv. Content Analysis

Teaching English to the pupils means developing language skills in them. The English class is classified into its various constituents. Prose, poetry, grammar, composition and extensive reading constitute the English course for the school students. If one masters the teaching of these constituents, he/she will be able to teach the entire course of English study. A knowledge of this will help a student teacher in getting an overall ability of English.

The principles underlying the teaching of prose, special methods and techniques to be used and tools to be employed in the teaching of prose are discussed here.

III.3.a.iv.A. The Objectives of teaching prose

To develop the mastery of the most useful sentence pattern.

To build up a vocabulary of useful words.

To test the pupils’ ability to recognise the written form of the language.

To enable the learners pronounce the words correctly.

To enable them comprehend the thought clearly.

To help them to know the spelling of often mis-spelt words.
The English teachers are expected to bring the above behavioural changes among the students.

The objectives of teaching English prose, 'to enable the students to comprehend the thought clearly' is taken for this study by the investigator.

III.3.a.iv.B. 'The skill of testing comprehension' in English Teaching

This skill refers to reading a prose passage aloud and asking questions to test the comprehension of the students. We have part A, B, and C in the present day textbooks. The part A of the lesson gives the teaching items and the vocabulary to be learnt. The second part of the lesson gives the prose text which gives a chance to practise and use the structure and words learnt in the earlier part. The third section, C, gives the language exercises which help to test the comprehension of the subject material and the mastery of the language skill.

It has been seen here that Part B of the prose passage is intended for the students to read and practise the teaching items. They should read and understand the prose passage themselves. The teacher should provide a model reading for
the students at the outset lest the students are prone to commit mistakes. They may mispronounce the new words and may not understand the difficult words or phrases, or make a wrong pause or read sentences with a wrong intonation.

The English teacher, therefore, should set himself/herself trained in reading an English prose passage correctly and ask questions of comprehensions. The skill of reading aloud includes the various components such as audibility, clarity, speed, phrasing, pausing, intonation, pronunciation and posture. These components are explained under the head, 'Evaluation Proforma'.

III.3.a.v. Script Writing

The important step in any video production is that of framing objectives. The objectives of the study are discussed in Chapter I. After completion of the experiment, the trainees are expected to

a) understand the various components of prose teaching

b) write lesson plan for prose teaching for comprehension

c) teach English prose for comprehension.
The role of the characters, their actions, and their voice were all planned and written keeping the objectives in mind. Then the script was written based on script writing procedure. What is that?

III.3.a.vi. Shooting

The script was analysed several times before taking for shooting. After choosing proper students and the teachers to act in the programme, the script was rehearsed. The topic was discussed with the camera man to overcome the technical problems. Then the shooting was done with the help of all those concerned.

III.3.a.vii. Editing

Then the investigator edited the entire lessons wherein the music was synchronised for effectiveness.

III.3.a.viii. Initial Testing

A group of 10 student teachers was exposed to the video lesson and their achievement was tested. 80 percent of them scored 75% average and their achievement was found to be satisfactory.
III.3.a.ix. Validation through Jury Opinion

The video lesson was screened to two English professors of Colleges of Education, the Professor of Educational Technology and two secondary school teachers. Their comments and criticism were invited and after the few changes, the video was taken for validation.

The Other Tools

Besides video, the following tools were also used in this study. They are

1. 'Evaluation Proforma' to measure the teaching competency of student-teachers, developed and validated by SRKV College of Education, Tamilnadu, India.

2. 'Attitude towards Teaching Scale' developed and validated by P. Ponnmbalam and H. Visweswaran

3. 'The Standard Progressive Matrices' sets A, B, C, D, and E prepared and developed by J. C. Raven.

4. The 'Personal Blank' to collect data on the sample.
This 'Evaluation Proforma' was developed and validated by SRKV College of Education. This had three major components in the skill of Reading aloud and Testing comprehension in English.

a) Reading (Process)
b) Selection of the Passages (Material)
c) Testing for Comprehension (Product)

The sub-components of each component are discussed below.

III.3.b.i. Reading

i) Audibility This component refers to the voice of the teacher which is loud or not for the students to hear and follow.

ii) Clarity While reading, the teacher should see that the words he/she pronounces are clear and intelligible for the students. The voice will be clearly heard if the words are pronounced in high pitch.
iii) **Speed**  The teacher should read the passage at a reasonable speed for the students to follow the passage. The process of reading should be shown enough for the boys to follow word by word and understand the meaning of the sentence and fast enough to cover the passages quickly.

iv) **Phrasing**  Refers to reading a group of words at a stretch that would make correct sense.

v) **Pausing**  Stop reading at the appropriate place for a short while either to take a breath or help the listeners to think or enable them to follow the passage or to stress a particular idea.

vi) **Intonation**  Refers to the rise and fall of the tone at the proper place in a sentence while reading.

vii) **Pronunciation**  Refers to uttering of words. The words should be uttered with proper stress and accent.

viii) **Posture**  The teacher should hold the right position of his body that would contribute for easy reading. This includes the holding of the book and the way the teacher stands in front of the class.
III.3.b.ii. Selection of the Passages

The passage chosen by the teacher should be interesting, centres round a single idea and should lend itself for teaching comprehension.

i) Suitability  The passage should be simple for the students to understand and interesting to follow. The ideas should be within the range of experience of the students.

ii) Length  It refers to the number of words and sentences in the passages. Normal length is about 350 words for the lesson of this kind.

iii) Language  It refers to the words and sentence structures that may be familiar or not familiar for the students.

III.3.b.iii. Testing Comprehension

After the process of reading is over, the teacher should test whether the students have understood the passage or not read to them. The questions may be on various details of the passage and on the surface and inside meaning of the passage. If the teacher gets correct response, then it can be taken for granted that the students have followed and understood the passage.
i) **Grammatical Correctness** The questions should be grammatically correct and should make good sense.

ii) **Relevency** The questions should be related to the facts and ideas expressed in the passage.

iii) **Specificity** Questions should be on particular details or ideas expressed in the passage. It should aim at getting a particular response.

iv) **Concise** Refers to the length of the questions. Short and simple questions are easily understood by the students. The question should not contain unnecessary words.

v) **Speed** Refers to time taken to ask the questions. Slow for the students to understand the question and fast enough to save time. The speed should be reasonable.

vi) **Type of Questions** Questions can be on facts, on the central idea of the passage, on the surface or on the hidden meaning of the passage. The questions should be framed in such a way as to test the understanding ability of the students.
vii) **Reinforcement of Pupils’ Response** This refers to the encouragements given by the teacher to get answers from the students. A good teacher could say ‘yes...good... correct ... continue etc.’ and make the students to come out with right answers.

**III.3.c. Attitude towards Teaching Scale**

This is the scale of 50 items developed and validated for research by P. Ponnambalam and H. Visweswaran for determining the attitude towards teaching of B.Ed. student teachers. It aimed at helping the trainees to understand socio-economic, cultural and political needs, expectations and aspirations of their society so that they can contribute their mite for a prosperous society. The Kothari Commission (1964-'66) and the Ishwarbhai Patel Committee emphasised the need for proving practical, useful, productive, socially relevant and educative activities in school and the latter committee recommended that ‘Socially Useful Productive Work’ or ‘SUPW’ must be given a central place in the curriculum at all stages of school education. The National Policy on Education (1986) has also emphasised this aspect of education.
In order to bridge the chasm that exists between the world of academics and the world of work due care should be taken in giving practical shape to the concept of SUPW. The alertness, enthusiasm and commitment of the teacher will go a long way to make 'SUPW' a success which is imperative for the bright future of the students. Hence the scale has been adopted to test the attitude of the B.Ed. student teachers towards teaching. It consists of 50 items to be rated by a five point scale of agreement.

III.3.c.1. Administration

The test was administered as a group test. Each component was given a printed form of the scale with a scoring form. The following oral instructions were given:

'Read the statements and tick your answer on the scoring form under only one of the 5 columns against the number of the statement for which you are expressing your opinion. Indicate by a tick (/) under the appropriate column if you totally agree or agree or are undecided or disagree or totally disagree with every statement in the scale. Answers should be on the scoring form only. Do not omit any item. Work quickly and do not spend too much time on any statement.'
There was no time limit but respondents took about 20 minutes to complete the test. Responses were collected and scored.

III.3.c.ii. Scoring

The scale consists of 50 statements out of which 27 are in positive and 23 are in negative form. The maximum score for each statement is 4 and the minimum score is 0. The maximum attitude scale, therefore, would be 200. This agreement score was calculated as follows.

Table 1 Points of Agreement Scale for Attitude Towards Teaching

<table>
<thead>
<tr>
<th>Agreement</th>
<th>Strongly Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Statement</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Negative Statement</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

81
III.3.d. The Standard Progressive Matrices sets A, B, C, D and E prepared and standardised by Prof. J.C. Raven (Vide Appendix. III)

This is a test to a person's capacity at the time of the test to apprenend meaningful figures presented for his observation, see the relationship between them, conceive the nature of the figure completing each system of relations presented and by doing so, develop a systematic method of reasoning.

The scale consists of 60 problems divided into five sets of 12 each. In each set, the first problem is as nearly as possible self-evident. The problems which follow become progressively more difficult. The order of the tests provides the standard training in the method of working. The five sets provide five opportunities for grasping the method and five progressive assessment of a person's capacity for intellectual activity. A person's total score provides an index of his intellectual capacity, whatever his/her nationality or education.

III.3.d.i. Administration

The test was conducted as a group test. The test booklets were distributed to the trainees with the following oral instructions.
Open your books and look at the first page. At the top it says set A and you have a Column A on your scoring form. This is A1. You see that the upper part is a pattern with a bit missing. Each of the bits given below the pattern is the right shape to fit the space, but, they do not all complete the pattern. Number 1, 2, 3 are not the right pattern. No. 6 is the right pattern but it does not go all over. Now find out the right pattern. If you need any more explanation you can ask me.

After a few seconds when the trainees give the correct number 4, they are appreciated and asked to write 4 against number 1 in column A on the scoring form. After waiting for everyone to finish, the person in charge continues.

On every page in your book, there is a pattern with a bit missing. You have to decide on the bit below which you think completes the pattern above and write the answer number on the scoring form in the appropriate column, and against the correct number of the pattern. They are simple at the beginning and get harder as you go on. Try each in turn from the beginning to the end of the book. Do not miss any out. Do not turn back. Turn over and do the next one.
When after giving sufficient time all of them got the correct answer No. 5 to A2, they were asked to proceed on their own till they got to the end of the book. They were strictly told that they should not write anything or make any marks on the booklet as they would be reused.

Approximately one hour was allowed. Care was taken to eliminate possibility of copying by making proper seating arrangements.

The test booklets and the scoring forms were collected after one hour and scored.

III.3.d.ii. Scoring

A score of 'one' was given for every correct answer with a maximum score of 60 and a minimum of 0.

III.4. Selection of the Sample

The sample was selected from two Colleges of Education affiliated to Bharathidasan University and was divided into two (equal) groups for matching. Cluster sampling technique was adopted on these matched groups. The sample in the experimental group was exposed to media presentation. This consisted of 40 teacher-trainees from various disciplines such
as the students of English literature, the students of science and the students of mathematics and the students of social sciences. There were twenty male and twenty female teacher trainees in the experimental group. Of 40 subjects 18 trainees had studied through English Medium and 22 had studied through Tamil medium at school level.

Table 2 Distribution of the Sample

<table>
<thead>
<tr>
<th>Group</th>
<th>Sex</th>
<th>Medium</th>
<th>Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>20</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Control Group</td>
<td>20</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>40</td>
<td>44</td>
</tr>
</tbody>
</table>

The sample in the control group was given training through conventional method. This consisted of 40 subjects.

Thus the sample consisted of B.Ed. students in two colleges. The distribution of the sample has been presented in the Table 2.
III.5. Estimation of Observer Reliability

Individuals differ in their ability to serve as reliable observers. Both accuracy and judgement in classifying verbal and consistency in judging the behaviours correctly are necessary qualities of a reliable observer. Unless recorded behaviours are actual observed behaviours, a system’s usefulness is limited. The greater the disparity between observed and recorded behaviours lesser the usefulness of the system for studying teacher behaviours. To provide an estimation of the observer reliability, the collected data has to be compared with that collected from the same setting by another trained observer. Sets of data should be collected under similar conditions if not identical for the exact accepted time sample. The investigator applied the Scott’s formula to find out the reliability correlation of the tool.

(Evaluation Proforma)

Reference and description are needed here of the 'Scott's formula'.

86
III.6. Experimental Design

The sample selected from two colleges of education was divided into two groups namely the 'Control' group and the 'Experimental' group. The control group was exposed to conventional method of teaching and the experimental group to the media. The teaching competency of the subject of both the groups were assessed then by 'Evaluation Proforma'. Inter-observer reliability was established. The data, thus collected, were put to the statistical analysis and the findings are discussed in the succeeding chapters.