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CHAPTER II

METHOD AND PROCEDURE

2.0.0 Design of the Study

The study was conducted in THREE stages. The first stage was the pilot stage and was conducted at the Faculty of Education and Psychology, Baroda. The second and the final stages were conducted at the Government College of Education, Ratnagiri. The pilot stage was meant for providing understanding about the feasibility and conceptual clarity about microteaching and some selected skills in teaching. The main purpose of the pilot study was to arrive at some tentative decisions and guidelines which would be useful for conducting the second and the final stages of the study. The second stage of the study was meant for systematic exposure of the student teachers to the three treatments and study their effects on the acquisition of skills in questioning at different stages of the study. The final stage was meant for replicating the experiment with a view to study the transferability of skills acquired in microsituation to classroom situation.

This Chapter, therefore, is divided into two sections for the sake of convenience. The objectives; the sample selected; tools used; application of the treatments; data collection, and treatment of the data and results are presented in Section I for the pilot study. Section II is a combined presentation of the above captions for the second and the final stages of the study.

Section I

2.1.1 The Objectives of the Pilot Study

The pilot study had the following objectives in view :

- (i) to get acquainted with the technique of microteaching;
- (ii) to train the supervisors and B.Ed. trainees (who opted for the experiment) in the technique of planning microlessons, giving them, observing them, and assessing them with the help of the tools specially developed for the purpose.
- (iii) to evolve and use the observation and assessment tools

specially developed for this purpose;

- (iv) to evolve and finalize the administrative aspects of the experiment, namely, (a) application of treatment, (b) allocation of the supervisors, and (c) data collection;
- (v) to arrive at tentative decisions and guidelines useful for the conduct of the second and final stages of the study.

2.1.2 Selection of Sample for the Pilot Study

The pilot stage was conducted with eighteen regular B.Ed. trainees out of the one hundred and sixty who enrolled for the B.Ed. degree course at the Faculty of Education and Psychology, the M.S. University of Baroda, Baroda for the academic year 1973-74.

Table No. 2.1.1

DISTRIBUTION OF STUDENT TEACHERS ACCORDING TO THEIR SEX AND METHODS OFFERED

Sex	No. of Stu- dents	Methods offered					
		Hindi- History	English- Geography	Science- Geography	Maths- Science	Science- Hindi	English- Hindi
Female	17	1	8	2	4	1	1
Male	1	-	-	-	1	-	-
Total	<u>18</u>	<u>1</u>	<u>8</u>	<u>2</u>	<u>4</u>	<u>1</u>	<u>1</u>

Out of these eighteen students who had either English or Hindi as their media of teaching, seventeen were female students and one was a male student. Table No. 2.1.1 above presents the distribution of the trainee teachers. Ten out of eighteen had no previous teaching experience at all, three had one year's experience, one had two years, one had three years, two had five years, and one had eight years of teaching experience. The distribution according to their academic qualifications can be described as under : There were one M.A. each in English and Psychology, one M.Sc. each in Mathematics and Botany, four B.Sc.s in Home Science, six had B.Sc. degree with one or more of the following subjects - Physics, Chemistry and Mathematics, and six had B.A. degree with either one or more of the following subjects : English, Hindi, French, Political Science, History, Economics, Home Science, and Psychology. The trainees could be categorized agewise in the following age interval. Thirteen belonged to the age interval 20-25 years; two belonged to the age interval 26-30 years; and three were above thirty years of age.

2.1.3 Other Personnel Involved

Besides the student teachers the following personnel

were involved in the pilot study : (i) the staff of the Faculty of Education; and (ii) supervisors.

The Faculty of Education and Psychology approved the plan and offered suggestions for the conduct of the experiment. The training of the supervisory team was initiated by one of the staff members from the CASE. A team of five teacher fellows, eight research fellows and two M.Ed. students were oriented with the theory and the technique of microteaching. The supervisory team was oriented to observation systems, approaches to student teaching and the minicourses in addition to microteaching. This training required twentyfour hours of active and intensive working schedule spread over a week from 9-00 to 11-00 hours and 17-00 to 18-30 hours. This covered both the theoretical aspects with demonstrations and practice in observation described in the following paragraphs.

- (i) Theoretical explanation of Microteaching to the supervisors :- The actual experiment began with the guide presenting to the assembled supervisors a brief history of the development of microteaching and its specific place in the teacher education programme.

It was clearly pointed out that microteaching was not to be treated as technique of teaching but training in the acquisition of skills in teaching. Its role in the cultivation of skills was insisted upon time and again. The presentation was followed by a group discussion which helped to clarify many of the misunderstandings regarding microteaching. The exact function of teach - feedback - replan - reteach - refeedback cycle in the acquisition of skills in classroom teaching was brought home to the supervisors.

- (ii) Explanation of theoretical basis for classroom observation to the supervisors :- The introduction of the theory and methods of classroom observation of the lessons with a view to helping the teacher to perform his task more efficiently was the next stage in the training of the supervisory team. The team was appraised of the fact that many teachers do get into certain habits which hinder effective teaching. Some teachers may lose some good habits because of lack of adequate feedback. Classroom teaching can be approached from various angles, such as student centred

approach, teacher centred approach, content centred approach, etc. The team felt that classroom observation was not an easy task and required rigorous practice to make it really useful as an objective feedback.

The insistence in the present experiment was on pinpointed observation providing the classroom teacher with such feedback as will make his classroom behaviour more precise towards an effective teaching-learning process. This meant that the observation should be as little subjective as possible.

(iii) Training in the technique of classroom observation :-

Flander's Interaction Analysis Categories (FIAC) system was introduced and explained to the team of supervisors. A group discussion on each of the ten categories and a simulated teaching session were held to clarify some of the doubts and difficulties. In the simulated lesson those who were not acting as students observed the lesson using the FIACS proforma. The observations were compared for inter-observer reliability. This exercise was repeated for about a week so as to achieve an acceptable level of inter-observer reliability.

(iv) Selection of skills for the experiment :- Many skills are known which go to make an effective teacher. Special attention of the supervisory team was drawn to the fact that the question of selection of skills for the experiment was largely governed by nonavailability of certain materials like a videotape which helps to present more accurate and objective feedback. This resulted in the selection of predominantly those skills where verbal feedback by the supervisors and peers would help the trainee to acquire proficiency in the skill. The following five skills were selected for the entire experiment : (i) fluency in questioning, (ii) probing questions, (iii) reinforcement, (iv) silence and non-verbal cues, and (v) illustration and use of examples. These skills happen to be some of the most important skills that are commonly used besides being easily observable and assessable. The present investigator has restricted his study only to the first two skills, namely, fluency in questioning and asking probing questions. After thorough discussion all the facets of all the skills were made very clear so as to

launch the next stage in the training of supervisors.

- (v) Simulated practice in microteaching by the supervisors and observation and assessment of the microlessons :-
The supervisors gave demonstration lessons demonstrating each of the skills selected. Those not acting as students observed the lessons and gave feedback at the end of the session. These sessions were repeated many times so that adequate mastery over the demonstration of the skill and its assessment was achieved.
- (vi) Training supervisors in the use of the observation and assessment tools :- A good proportion of time was spent in training the supervisors in demonstrating and evaluating the skills. The purpose of this intensive training was to get the meaning and purpose of the entire programme. This training was imparted through simulated lessons.

2.1.4 Observation and assessment tools for the microlessons

With a view to bringing greater consensus and effectiveness in the feedback observation and assessment tools

were prepared for both the skills. The following tools were prepared for 'fluency in questioning' : (a) lesson evaluation proforma for supervisors (vide Appendix I-A), (b) self-assessment proforma for microteachers (vide Appendix I-B).

For the skill in 'asking probing questions' the following tools were prepared : (a) lesson evaluation proforma for supervisors (as in Appendix I-A), (b) teaching evaluation proforma for self and peers (vide Appendix I-C). A description of the tools used in the study is given below :

2.1.4.1 Tools for the skill 'fluency in questioning' :-

Two observation tools were prepared for this skill. (a) 'Lesson Evaluation Proforma' for the use of supervisors, and (b) 'A Self-evaluation Proforma for Microteachers'. No tool for peer observation of the lesson was prepared at this stage as the student teachers were completely new to such experimental observation and assessment.

(a) Lesson Evaluation Proforma : The purpose in preparing this tool was to measure how successful was the student teacher in the use of questioning as a technique for teaching. The two categories of the questions, namely, 'long questions' and 'short questions' were made on the

basis of the number of words used in the questions. The three stages of the lessons, namely, the beginning part of the previous knowledge, the middle part relating to the development of the content and the end part covering the recapitulation stage were considered separately for the sake of better observation and interobserver comparability. Each of these sections was provided with a column in the observation proforma (Appendix I-A). Besides these, space was provided for tabulating the number of student responses and observer's remarks with respect to the various questions. The column for observer's remarks was meant for the feedback to the trainees.

- (b) Proforma for Microteachers : This proforma (Appendix I-B) consisted of a rating scale with two items on a seven point scale and an open-ended question asking for the trainee's suggestion for the improvement of the skill. The open-ended question was meant for the student teachers to understand the skill better and to take active part in the programme.

2.1.4.2 Tools for the skill in asking 'probing questions' :-

The supervisors observation proforma in this case was the same

as the one used previously for the skill of 'fluency in questioning'. In addition to this 'Teaching Skill Evaluation Proforma' was prepared (vide Appendix I-C).

(c) Teaching Skill Evaluation Proforma : It consisted of a seven point rating scale from 'not at all' to 'very much'. This proforma was meant for peers to rate the lessons they observed. The same proforma was used by the microteachers for self-evaluation for every lesson they taught. The proforma had four statements regarding the four specific aspects of 'probing questions' that the student teachers were expected to concentrate upon. These aspects were : introduction of prompts, refocussing of the theme, seeking more clarification and redirection of student's response. The construction of these tools was a group activity where everyone including the student teachers contributed to the construction of the tool.

Self-evaluation of the microteaching programme :

The first part had twentyeight questions in the form of a five point scale checklist (vide Appendix II) ranging from 'very much' to 'not at all'. It included eight questions on

feedback, six regarding the organization of the programme, two about teach sessions, four about the supervisors, and eight questions about the skills practised by them. The second part of the questionnaire contained seven questions on simulation, peer-behaviour, meaningfulness of the explanation of the skills and their own estimate of their improvement in the exercise of the skills as a result of the experience. A question was included at the end seeking suggestions for improvement of the programme.

2.1.5 Treatment

The treatment consisting of the following steps was administered to the group of B.Ed. students opted for the experiment. (a) Classroom observation, (b) roleplay, (c) lesson plans, (d) microteaching, and (e) introduction of the skills in questioning.

(a) Classroom observation : Two short lessons - one in 'English grammar' and the other on 'effects of heat' were presented with a view to bringing home the importance as well as the difficulties in objective

observation. Each lesson was followed by about fortyfive minutes of discussion. It was revealed that simply observing the lesson and making comments in a general way did not help the teacher much in improving his teaching skill. The FIACS as a possible system of objective observation was introduced at this point. The coding system, the ground rules were thoroughly explained to the students. After a couple of days the student teachers observed another demonstration lesson for five minutes with the help of the FIACS. The results of observation were discussed thoroughly from various angles as such/occurrence of the categories, interobserver correspondence etc. The purpose of the activity was to highlight the salient features of classroom observation in general and of teacher behaviour in particular. This would help the microteachers to become alert to the need for objective evaluation and feedback necessary to master the skills of effective teaching.

(b) Roleplay : The aim of this exercise was twofold :

- (i) to make simulated microteaching as close to reality as possible, and (ii) to help the student teachers to

acquire a deep understanding of the student's classroom behaviour. For this purpose, some members of the supervisory team enacted the role of either authoritarian or democratic teachers while other supervisors acted as students exhibiting the appropriate student behaviour in each instance. Later some of the student teachers enacted some of the common classroom scenes with some of them acting as teachers and others as students. The discussion that followed analysed the degree of success of each of the participant in making the role as life like as possible.

(c) Lesson planning : The supervisors considered the lesson plan format developed and prescribed by the Regional College of Education, Mysore, to be the most suitable for this experiment. This format was presented to the student teachers. Writing down the behaviour specifications and other details of the format were discussed thoroughly. The student teachers were thus oriented in developing lesson plans.

(d) Microteaching : The theoretical foundations of micro-teaching and its psychological soundness were discussed

along with the introduction of the technique of microteaching. In order to clear the concept a practice session was organized. The whole group was divided into two batches and each batch was assigned a separate room with two supervisors. Two student teachers from each batch were previously been informed about the lessons to be given and thus came prepared for the lessons. One student delivered the lesson which was observed by one of the supervisor. The microteacher and supervisor who observed the lesson went out to discuss the performance in the light of the observations noted down by the supervisor. In the meantime the second student teacher had already started teaching with the second supervisor as observer. After a short break the reteach session began with the supervisors with their microteachers moving to another room to the group which they had not taught previously. Once the cycle was completed by all the four teachers, the whole group met again and discussed the mechanics of microteaching.

- (e) Introduction of the skills in questioning : The supervisors explained to the student teachers the meaning,

importance, and the various types of questions that are used in a typical teaching learning situation. Special emphasis was placed on the skills in maintaining 'fluency in questioning' and asking 'probing questions' though other types and forms of questions such as convergent, divergent questions were also discussed. Simulated lessons demonstrating the use of different types of questions were given by the supervisors. In this context the process of observation and assessment of the skills in 'fluency in questioning' and 'probing questions' were explained to the student teachers.

2.1.6 Data Collection

The three stages in data collection were as follows :

(i) practising the skill of 'fluency in questioning', (ii) practising the skill of asking 'probing questions', and (iii) the evaluation of microteaching programme by the student teachers. Data collection was started when the student teachers were sufficiently well grounded in the theory of microteaching and the skills they were going to practise.

Practising the skill of 'fluency in questioning' : A team of two supervisors was assigned to a room with a batch of atleast five student teachers acting as students while their peers presented the lesson. Two sets of microteachers were having their 'teach' sessions simultaneously in two rooms. After the feedback session and replanning, the respective supervisors and the microteacher, went to a group they had not taught in the teach session which was followed by discussion between the microteacher and the supervisor. Two such cycles were completed by each student teacher. Four student teachers completed a cycle in an hours time. The coordinator of the programme moved from room to room to make sure that everyone moved according to schedule.

Schedule of the Experiment

Time	Room I				Room II			
	Teach	Feed-back	Replan	Reteach	Teach	Feed-back	Replan	Reteach
9.00-9.08	$S_1 T_1$				$S_3 T_3$			
9.08-9.16	$S_2 T_2$	$S_1 T_1$			$S_4 T_4$	$S_3 T_3$		
9.16-9.24		$S_2 T_2$	T_1			$S_4 T_4$	T_3	
9.24-9.32			T_2	$S_3 T_3$			T_4	$S_1 T_1$
9.32-9.40		$S_3 T_3$		$S_4 T_4$		$S_1 T_1$		$S_2 T_2$
9.40-9.48		$S_4 T_4$				$S_2 T_2$		

S_1, S_2, S_3, S_4 = Supervisors T_1, T_2, T_3, T_4 = Microteachers

After the completion of 'reteach' the microteachers were given the 'Proforma for Microteachers' to give their own evaluation of the cycle just completed. Everyone of the group completed two cycles in the skill of 'fluency in questioning' before moving on to the next skill.

Practising the skill of asking 'probing question' : The nature and scope of asking 'probing questions' was explained to the microteachers by one of the supervisor as it happened to be the next skill. A few demonstration lessons demonstrating the skill in asking 'probing questions' were arranged by the supervisors. The microteachers observed the lesson and discussed the skill after the completion of the lesson. For the rest the same schedule was followed as in

The supervisors used the same proforma for their observation. In this case peers also acted as lesson observers using the tools mentioned earlier, namely, the 'Teaching Skill Evaluation Proforma'. Every completed lesson was assessed by the peer observer and the microteacher himself. Some peers observed the lesson using FIAC. All the student teachers of the group completed two cycles of the skill in asking 'probing questions' by the end of the pilot stage.

Evaluation of Microteaching Programme : Student responses on the 'Self Evaluation of Microteaching Programme' were collected.

Statistical Techniques used :

The correlations, means and standard deviations were computed to study the nature of variables. The 't' test was employed to find out the significance of the difference between means related to teach and reteach in each of the two skills. The confidence levels for the means were calculated in case of the variables in the 'Self Evaluation of Microteaching Programme'.

2.1.7 Findings of the Pilot Study

The major findings of the pilot study regarding the skill of 'fluency in questioning' were as under :

- (a) According to self-assessment, there was significant difference between reteach-I and reteach-II in the behaviour of the student teachers.
- (b) Assessment by the supervisors showed significant modifications in the student teachers' behaviour from

teach to reteach in both the cycles.

Following are the findings concerning the skill of 'probing questions' revealed from the analysis of the data collected :

- (a) Significant changes in self-assessment in the four aspects of probing questions were indicated. Judging from the correlations between teach and reteach no definite pattern appeared to have been maintained.
- (b) There appeared to have been significant changes in the behaviours of student teachers according to peer observation. In five out of eight significant correlations were obtained indicating a greater consistency in the order of change.
- (c) Supervisors also noted from their assessments that significant changes in probing behaviour had taken place.

From the rating scale and open-ended questions of the 'Self-evaluation of Microteaching Programme', the following trends in thinking of the student teachers were detected :

- (a) The student teachers had positive regard for both theoretical explanation and practical exercise of the two skills.
- (b) Seventyeight percent of the student teachers indicated their preference for real students in microlessons while fiftysix percent found the observations by the FIACS both tedious and time consuming.

Method and procedure for the second and the final stage follow.

Section II

2.2.1 Tentative Decisions and Guidelines

As a result of the findings from the analysis of the data from the pilot stage, the following decisions regarding the conduct of the second and final stages of the study were taken tentatively :

- (i) Observation of teaching using the FIACS was decided to be dropped from the second and the final stages of the study.

- (ii) Only peer feedback was ■ decided to be made available to the microteachers as supervisory feedback appeared to be superfluous and presented some administrative difficulties.
- (iii) Microlessons of seven to eight minutes of duration were to be planned by the student teachers but the time to be actually provided in the timetable was to be ten minutes so as to have the first lesson completed naturally and the next microteacher could be in readiness to conduct his/her lesson.
- (iv) Since every microteaching session was to last for ten minutes and five additional minutes were to be provided for receiving feedback, only four microteachers could finish their teaching in one hour's time. Therefore, six groups were decided to be secured for practising the microlessons. Getting real students from schools (though seventyeight percent of the student teachers preferred to have them) presented lot of administrative difficulties, it was decided to assign inservice primary teachers enacting the role of students to form six groups each having five students.

- (v) Self assessment of the entire microteaching programme was to be obtained at the end of the final stage of the study.

The second stage and the final stage of the investigation were meant for the systematic application of the modeling and microteaching treatments to three groups selected from the B.Ed. students enrolled for the academic year 1974-75 at the Government College of Education, Ratnagiri. The selection was made separately for the two stages at two different times. The second stage was over in October 1974 and the final stage was over by the end of January 1975. The student teachers were exposed to the three different treatments, namely, symbolic modeling, audio modeling, and microteaching and their effects on the acquisition of skills in questioning at different stages of the experiment were studied. The samples selected; tools used; application of the treatments; data collection; and treatment of the data for the stages are explained in the following paragraphs.

2.2.2 Selection of Samples for the Second Stage

It was thought desirable to represent the subject

selected for school teaching equally in all the three groups to which the treatments were to be administered. Each group consisted of ten student teachers each with four student teachers offering Hindi, three offering Geography, and three offering Science as their teaching subjects. Out of the four offering Hindi two were male student teachers and two were female student teachers. Out of the three offering geography and science, two were male student teachers and one female student teacher each. Thus, the subjects offered for schoolteaching and the sexes were equally represented in all the three groups. However, the student teachers had different amount of previous teaching experience and they belonged to different age groups also. The following table summerizes the structure of all the three treatment groups of the second stage of the study.

Table No. 2.2.1

**DISTRIBUTION OF STUDENT TEACHERS
ACCORDING TO THEIR SEX, AGE AND PREVIOUS TEACHING EXPERIENCE**

Previous Teaching Experience in years		-----TEACHING EXPERIENCE-----												Total		
		Less than a year		1-3		4-6		7-9		10-12		13-15			16-18	
		M	F	M	F	M	F	M	F	M	F	M	F		M	F
Age	Hindi	-	1	-	-	-	1	-	-	-	-	-	-	-	-	2
	21-25 Geog.	-	1	-	2	1	-	-	-	-	-	-	-	-	-	4
	yrs. Sc.	-	1	-	1	3	-	-	-	-	-	-	-	-	-	5
Age	Hindi	-	-	-	1	1	2	2	-	-	-	-	-	-	-	6
	26-30 Geog.	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
	yrs. Sc.	-	-	-	-	1	-	-	1	-	-	-	-	-	-	2
Age	Hindi	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1
	31-35 Geog.	-	-	-	1	-	1	-	-	1	-	-	-	-	-	3
	yrs. Sc.	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Age	Hindi	-	-	-	-	-	-	2	-	1	-	-	-	-	-	3
	36-40 Geog.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	yrs. Sc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Age	Hindi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	41-45 Geog.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
	yrs. Sc.	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Total		0	3	0	6	7	4	4	2	2	0	1	0	1	0	30

It is clear from the table that three female teachers belonging to the age group 21-25 years had less than

a year of previous teaching experience while three female student teachers of the same age group had between 1 to 3 years of teaching experience. Four male student teachers of this age group had between 4 to 6 years of teaching experience while only one female student teacher had between 4 to 6 years of previous teaching experience. It can be generalized that 36.66 percent of the sample of student teachers were between 21 to 25 years of age, while 30.00 percent of the group had an age range between 26 to 30 years; 16.66 percent belonged to the age group 31 to 35 years; 10.00 percent belonged to age group 36 to 40 years; and 6.60 percent were included in the age group 41 to 45 years.

2.2.3 Selection of Samples for the Final Stage

The composition of the groups could not be uniform because of ⁱⁿ⁻adequate numbers for each category either sexwise or subjectwise or agewise etc. Student teachers offering either Marathi or English or history or Mathematics were selected for inclusion in the experimental groups. Table No. 2.2.2 summerizes the structure of all the treatment groups of the final stage of the study.

Table No. 2.2.2

DISTRIBUTION OF STUDENT TEACHERS
ACCORDING TO THEIR SEX, AGE, PREVIOUS
TEACHING EXPERIENCE, AND SUBJECTS OFFERED FOR TEACHING

		----- TEACHING EXPERIENCE -----														Total
		Less than a year	1-3		4-6		7-9		10-12		13-15		16-18			
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	
A G E	Age Mar/Eng	-	-	-	-	1	2	-	-	-	-	-	-	-	-	3
	21-25 Hist.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	yrs. Maths.	-	-	2	-	1	1	-	-	-	-	-	-	-	-	4
	Age Mar/Eng	-	-	-	-	6	1	1	-	-	-	-	-	-	-	8
	26-30 Hist.	-	-	-	-	1	-	-	-	-	1	-	-	-	-	2
	yrs. Maths.	-	-	1	-	1	-	-	-	-	-	-	-	-	-	2
	Age Mar/Eng	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
	31-35 Hist.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	yrs. Maths.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	Age Mar/Eng	-	-	-	-	1	-	-	-	-	-	-	1	-	-	2
	36-40 Hist.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	yrs. Maths.	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
	Age Mar/Eng	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
	41-45 Hist.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
	yrs. Maths.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
	Age Mar/Eng	-	-	-	-	-	-	-	-	-	-	1	-	-	1	2
	46-50 Hist.	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
	yrs. Maths.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Total		2	0	3	0	11	4	1	0	2	1	1	1	3	1	30

The table showed that 23.33 percent of student teachers belonged to the age group 21 to 25 years; 40.00 percent to the age group 26 to 30 years; 6.66 percent to the age group 31 to 35 years; 13.33 percent to the age group 36 to 40 years; 6.66 percent came under the age group 41 to 45 years; while 10.00 percent were under the age group 46 to 50 years. Out of the thirty student teachers six offered history, seventeen offered either Marathi or English, while the remaining seven offered mathematics as their teaching subjects. It appears from the table that 50 percent of the group had previous teaching experience between four to six years; 13.33 percent of the student teachers had more than sixteen years of teaching experience before they joined the B.Ed. Course. The group was predominantly language oriented as seventeen out of thirty offered either Marathi or English.

2.2.4 Other Personnel Involved in the Study

It was necessary for the investigator to keep himself free for organizing and supervising the actual conduct of treatment sessions and thus conduct the experiment efficiently. Therefore, it was decided to have peer feedback

throughout the experimental sessions. The student teachers involved in the experiment were oriented by the investigator following the steps mentioned below.

(a) enumeration of teacher characteristics; (b) classroom observation; (c) lesson plans; (d) roleplay; (e) introduction of the skills in questioning. The enumeration of teacher characteristics was given as an exercise to all the student teachers. As a result of this enumeration ten positive and fifteen negative characteristics were finalized and the further steps were followed in case of the experimental groups only involved in the second stage and the final stage.

2.2.5 Tools Used for Data Collection for the Second and the Final Stages

The tools developed during the pilot study, namely, 'Teaching Skill Evaluation Proforma' was used for data collection in both the stages. The same tool was also used for 'peer observers' and for 'self assessment'. New tool was specially designed to assess the global performance at the pretreatment and posttreatment stages in the final stage of the investigation. This is given in Appendix I-D. This

tool for global assessment was not ready for use during the second stage of the experiment.

2.2.6 Treatment (Common to both the stages of the experiment)

The treatment consisted in exposing the three groups to three treatments systematically and uniformly. Group A, consisted of ten students, was exposed to symbolic modeling, namely, presenting a written lesson script. Group B, with ten student teachers, was exposed to audio modeling, namely, listening to an audiotaped script of the symbolic model used for Group A. Group C, with ten students were exposed to microteaching, meaning, teach and reteach cycle. The treatment was identical for both the stages. (Appendix III)

The actual arrangement of the experiment was kept uniform throughout the experiment. Six rooms were made available to the three experimental groups. Each group was divided into two subgroups, each consisting of five student teachers teaching the students. The students for these sessions were the primary teachers admitted for inservice training course at the Government College of Education,

Ratnagiri. Thus, simultaneously six teachers could finish their lessons of ten minutes of maximum duration. Five minutes were kept for discussion which was participated by the two observers and the primary teachers who acted as students. This was the feedback session. Thus, in seventy-five minutes time, all the thirty microteachers would have taught one lesson each for ten minutes and had a discussion of five minutes. The paradigm was as follows :

Schedule of Microlessons

Time	Activity	Micro-teacher	Observers
8.00-8.10	Teach	A ₁ A ₄ and A ₅	--
8.10-8.15	Critique	A ₁ A ₄ and A ₅ ; Self assessment by A ₁	
8.15-8.25	Teach	A ₂ A ₅ and A ₁	--
8.25-8.30	Critique	A ₂ A ₅ and A ₁ ; Self assessment by A ₂	
8.30-8.40	Teach	A ₃ A ₁ and A ₂	--
8.40-8.45	Critique	A ₃ A ₁ and A ₂ ; Self assessment by A ₃	
8.45-8.55	Teach	A ₄ A ₂ and A ₃	--
8.55-9.00	Critique	A ₄ A ₂ and A ₃ ; Self assessment by A ₄	
9.00-9.10	Teach	A ₅ A ₃ and A ₄	--
9.10-9.15	Critique	A ₅ A ₃ and A ₄ ; Self assessment by A ₅	
9.15-9.25	General Discuss- ion	A ₁ ;A ₂ ; A ₃ ;A ₄ & A ₅	Investigator

A₁; A₂; A₃; A₄; and A₅ = Microteachers

The reteach was arranged next day on different group of students. There were two lessons (teach only) per skill per student for the student teachers exposed to the modeling treatments and two cycles (teach-reteach) per student for the student teachers exposed to microteaching treatment in the second stage. The general structure of the schedule remained the same for the final stage except that there were four lessons (teach only) per skill per student for the student teachers exposed to modeling treatments and two cycles (teach and reteach) per skill per student for the student teachers exposed to microteaching treatment. The groups were exposed to symbolic modeling and audio modeling treatments on the previous day of the microlessons based on the skills were scheduled to be started so as to enable the microteacher to plan their lessons the next day. Then at the end of the session the student teachers of the respective groups were again exposed to the modeling treatments so that they could plan their next microlesson. Models were changed only with the new skill and not for every lesson of the same skill.

2.2.7 Introduction of the Skills in Questioning

Before the commencement of the microlessons based

on the skill in questioning, the experimental groups were oriented with the particular skill in questioning. The nature and scope of the probing questions, convergent questions, and divergent questions and their place in the teaching learning situation were discussed with one or two illustrations of each kind. This was done quite in advance so that the members of the experimental groups may get sufficient time to think over and get their difficulties clarified.

2.2.8 Data Collection

The data collection for the second stage of the study comprised of the following steps : (i) practising the skill in asking 'probing questions' and obtaining assessment scores by two peer observers and self assessment for every lesson by using the tools; (ii) practising the skill in asking 'convergent questions' and obtaining the assessment scores for every lesson by using the tools; and (iii) practising the skill in asking 'divergent questions' and obtaining assessment scores for every lesson by using the tools in a manner described above. (Refer Appendix IC₁, C₂, and C₃)

In addition to the assessment scores for every

lesson of all the three skills, pretreatment and posttreatment global assessment scores on the classroom teaching performance of every student teacher of the experimental groups in Phase-III were obtained by using the proforma for global assessment (vide Appendix I-D). At the end of data collection of the third phase of the experiment, self-evaluation of microteaching programme was carried out.

2.2.9 Statistical Techniques Used for Analysis of the Data obtained for the Second Stage

Analysis of variance was used to analyse the data obtained for the second stage of the experiment. The details of the analysis with tables followed by interpretation of the results are given in Chapter III.

2.2.10 Statistical Techniques Used for Analysis of the Data obtained for the Final Stage

Analysis of variance was used to analyse the data obtained for the final stage of the experiment. The details of the analysis with tables followed by interpretation and discussion of the results for both phase-II and phase-III are given in Chapter IV.
