CHAPTER II

MICROTEACHING : DEVELOPMENT AND RESEARCHES

II

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2.1 Introduction

Microteaching, as Allen and Ryan put it, was not dreamed up over a cup of coffee on a rainy afternoon nor did it develop full-blown as a deliberate solution to the problem of practice-teaching. This chapter deals in brief with the development of microteaching technique as a tool of teachers training, considers some theoretical aspects underlying the technique and reviews work done in the area.

2.2 Development of Microteaching

Microteaching technique as a tool for training of teachers evolved slowly in answer to a problem that is common in teacher education. The effectiveness of traditional practice teaching courses in helping students to become skilled classroom teachers has been questioned for many years. Morrison et al. (1973) report that much of the instruction given on teaching methods is in the form of a series of practical hints and suggestions which, being pragmatically justified, are not conceptually related to one another. The problem is that theoretical courses are not about teaching and that method courses, which are about teaching, have no theoretical foundations.

Despite the obvious weakness of traditional practice teaching, there was little development for alternative procedure till early sixties. A most promising alternative approach developed at Stanford University from 1963 onwards was micro-teaching. The Stanford team first attempted to stimulate teaching situation by having students teach groups of their peers. Students however tended to react negatively to this and it was arranged to teach short lessons to small groups of school pupils, the goal being to provide real teaching in simplified conditions. Perhaps the most original idea brought up at the time was of using these simplified conditions to help students develop and practise specific skills of teaching.

In the first microteaching clinic during summer of 1963 at Stanford, the beginning teachers taught brief lessons to normal students. This was followed by a critique period during which they received feedback from supervisors as well as peers. Although this initial microteaching approach was a major improvement over traditional demonstration teaching lesson, it was felt that both the teaching and critique sessions lacked direction and how-to-teach dimension was lacking. A remedy was first suggested by Aubertine (1964) who gave the beginners instructions in the performance of a specific specific teaching skill viz. set induction. As shown by his study, this practice of focusing on one teaching skill was quite effective and it was decided that subsequent microteaching clinics would be used to train the beginners in specific teaching skills.

The basic assumption was that teaching can be analysed according to types of activities in which a teacher is engaged. As Gage (1963) has put it, teachers engage in explaining activities, mental hygiene activities, demonstrating activities, guidance activities, order-maintaining activities, house-keeping activities, record-keeping activities, assignment-making activities, curriculum planning activities, testing and evaluating activities and many other kinds of activities. If everything a teacher does is teaching, then teaching consists of many kinds of activities.

Working from this basic framework and refining the concept of teaching even further, Stanford Teacher Education Programme staff members identified, isolated and built training protocols for critical teaching skills. The decision as to what skills should be developed in the clinic was not made in light of any set rules about good teaching or what teachers need to know, but resulted from the discussions and debates of the microteaching staff. Priority was given to general teaching skills that seemed to be most important for beginning teachers to possess. These general teaching skills can be applied at many levels for teaching many different subjects, and Allen and Ryan (1969) lists fourteen such teaching skills.

During the summer of 1963, more than sixty teacher-education candidates were taken up for trying out this new approach, and it was found that microteaching prepared teachers did better than

those with standard preparation, even though the total time involvement in the microteaching clinic was less than ten hours per week as compared to twentyfive hours per week commitment required by the student-teaching experience. Acheson first suggested the use of videotape and though the association of microteaching with videotape was a happy one, it has also led to some misunderstanding of the role of videotape. Videotape is an important but not an essential part of microteaching.

During the second year of the study in 1964, a major structural change was the addition of the repeat session. Several additional skills were investigated. Videotape technique was used to explore various styles of supervision. The focus of the clinic was entirely upon general technical skills of teaching but with the passage of time, flexibility of microteaching procedure was recognised and many different variants of microteaching were tried during the sixties. In spite of the variations, however, something approaching a standard procedure for microteaching emerged which is as under.

1. A particular skill is defined to student-teachers in terms of a pattern of teaching behaviour and the objectives which such behaviour is aimed at achieving. Some attempt is made to justify the value of the objectives and the suggested efficacy of the skill.
2. Videotapes are shown of teachers using the skill, in microteaching or normal classroom teaching, together with a commentary drawing attention to specific instances of the teacher's use of the skill.

3. The student-teacher plans a short lesson in which he can use the skill and teaches it to one group of pupils.
4. A videotape of the lesson is replayed to the student who observes and analyses it with the help of the supervisor. The supervisor attempts to make reinforcing comments about instances of the effective use of the skill and draws attention to other situations where the skill could have been exercised.
5. In the light of the videotape, feedback and supervisor's comments, the student replans the lesson in order to use the skill more effectively.
6. The revised lesson is retaught to a different but comparable group of pupils.
7. A videotape of reteach lesson is replayed and analysed with the help of the supervisor.
8. The teach-reteach cycle may be repeated.

Microteaching does have advantages over traditional practice teaching and this was quickly accepted in the United States; and, by late sixties, a large proportion of teacher education institutes were using the new technique. British colleges and universities were rather slower to introduce microteaching and it was left to two new universities. Stirling and the New University of Ulster to take the initiative. Education courses at Stirling, in the programmes of concurrent academic and professional studies leading to B.A. degree with secondary school teaching qualifications, were first taught in 1968. Professor Elizabeth Perrott, the first Head of the Education Department, planned that microteaching should form a component part of these courses from the beginning.

Furthermore, a six-year research project (1969-75) was undertaken to evaluate the contributions that microteaching can make to pre-service professional education of secondary school teachers.

In India, work in the area of microteaching was initiated by Tiwari (1967) at Government Central Pedagogical Institute, Allahabad. This was followed by other research efforts by Shah (1970) at Technical Teachers' Training Institute, Madras; Bhattacharya (1975) at Calcutta and Dosajh (1974) at Technical Teachers Training Institute, Chandigarh. A large scale experimental field study was undertaken in 1975-76 by the Department of Teacher Education, NCERT, in collaboration with CASE at Baroda and other nine colleges and University Departments. This was followed by another research project in 1976-77 planned by the Department of Teacher Education, NCERT in collaboration with the Department of Education, Indore University and twentytwo other colleges and university departments from all over the country. Work has been done in studying various aspects of microteaching and results have been found encouraging.

2.3 Theoretical Basis of Microteaching

Microteaching aims at behaviour modification in teacher-trainees and steps suggested by McDonald (1973) are implicit in the technique. The steps are : (i) stating the behaviour in operational terms, (ii) fixing a criteria for measuring the

behaviour, (iii) pre-treatment stage which involves measuring entry-behaviour of the trainee, (iv) giving treatment for behaviour modification and (v) obtaining post-treatment measures of the behaviour. The difference in measures of pre-treatment and post-treatment gives the extent of behaviour modification. The cycle may be repeated till a set level of mastery is achieved by a trainee. In microteaching, a trainee is aware of the behaviour to be modified through the study of a particular skill. A behaviour is practised during teach session and pre-test measures are obtained. Treatment involves giving feedback in the light of modelling behaviour. Post-treatment measures are obtained during the re-teach session and the difference in the measures of teach and re-teach sessions indicate the level of mastery achieved.

Treatment forms an important part of the process and in microteaching cycle, the critique session with or without CCTV or audio-recorder becomes an essential part of the cycle wherein a trainee receives the feedback which acts as reinforcer for the re-teach session. In terms of learning phraseology, a reinforcer is an event following behaviour, which changes the probability that the behaviour will occur again. Reinforcement is a complex phenomenon and the single term covers a very broad category of events. In human learners, and particularly at post-childhood level, these events can be verbal and information-giving. Thus, a most common reinforcing event during school years and latter is provided by knowledge of results or informative feedback. Some of the feedback with which one is concerned in formal training sessions is feedback

provided from an external source and such a feedback may be either concurrent or terminal - concurrent when it is provided while the task is being undertaken and terminal when it is provided after completion of the task. Both concurrent and terminal feedback may be either intrinsic or artificial.

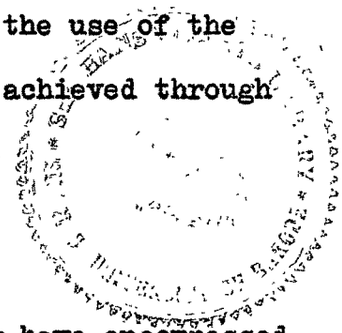
In microteaching approach as well as in traditional approach of practice teaching, the feedback providing reinforcement is terminal and artificial but a major change is in the fact that feedback in microteaching is not too remotely tied up with the task to be performed. In most current educational situations, artificial feedback is often too remote to prove of any value e.g. an overall grade for work performed during a semester is probably useless as a means of improving future performance. Artificial terminal feedback, tied closely to the task to be mastered, can have a high utility value in providing learning and behaviour modification. Another important aspect of microteaching is that the feedback is used to evaluate the future (reteach) performance. A learner's knowledge that the information provided by feedback is or is not going to be used later becomes a crucial factor in determining the extent to which the results of feedback are retained by the learner.

Microteaching technique seems to be based on Skinnerian operant conditioning. Skinner's system departed from the traditional stimulus-response psychology by making a distinction between respondent and operant behaviour. Responses which are elicited

by known stimuli are classified as respondents and there is a second class of responses that need not be correlated with any known stimuli. Such responses are known as operants. Operant behaviour is not elicited by a recognised stimuli and hence its strength cannot be measured by usual laws of reflexes. Instead, rate of response is used as a measure of operant strength. In operant conditioning, reinforcement cannot follow unless conditioned response appears i.e. reinforcement is contingent upon the response. According to Bartley (1970), if an operant response occurs and is followed by reinforcement, the probability of its recurring increases. Most human behaviour, including classroom teaching, is operant in nature and this principle of operant conditioning is fundamental to feedback session in microteaching cycle. The consequence of reinforcing the operant is an increase in its rate or probability of occurrence per unit time.

Skinnerian theory of shaping in acquiring new patterns of behaviour seems to have been applied to teach-feedback-reteach pattern of microteaching. In one experiment of Skinner (1938), rats were trained to press the lever of the specially designed box with a forcefulness above certain criterion. The principle is that of operant reinforcement but it is applied at the level of intensive variation of the response. A low criterion is established and only those lever-presses which exceed the set criterion are reinforced. Thus, forceful presses are strengthened and the entire force distribution shifts to a higher value. The set criterion may be raised again and again gradually and so shape lever-presses

of higher value. The relevance of such results of shaping with learning complex human skills is obvious e.g. social community shapes our speed and loudness of speaking in particular settings. During microteaching cycle, such shaping in the use of the particular skill that is being developed is achieved through teach-feedback-reteach pattern of the cycle.



2.4 Review of Researches

Researches in the area of microteaching have encompassed many aspects of the technique such as effectiveness of microteaching, attitude of trainees towards microteaching, pupil VS peers in microlessons, modelling, role of supervisors, types of feedback and transfer of the development of skills to actual classroom teaching. The investigator gives below researches done under some of these various topics as well as researches carried out in India.

2.4.1 Effectiveness of Microteaching : One of the earliest studies of the effectiveness of microteaching was carried out at Stanford University in 1963 (Allen and Ryan, 1969). The trainees were divided into two groups of about thirty each and one group received teaching experience in microteaching setting while the other group went through the traditional practice teaching programme. It was observed that students trained in microteaching clinic made significant improvements in the skills practised and they were judged to display greater teaching

competence. Students of microteaching group were very enthusiastic and felt that those in non-microteaching group had missed a valuable experience.

Orme (1966) in one study concluded that inclusion of films and model teachers in microteaching formet to demonstrate desirable teaching technique led to increased effectiveness in terms of classroom performance. The study also indicated that, while microteaching scaled down the real classroom situation, it did not distort it and microteaching behaviour was not unique to the situation but was representative of teacher's classroom behaviour. It was also found that rating of teaching performance based on short CCTV lessons were good predictors of later ratings in teaching competence.

Kallenbach et al (1969) undertook a study wherein effectiveness of microteaching was studied through training nineteen elementary school interns through microteaching and eighteen others through traditional approach. The findings of the study were that (i) the two groups did not differ significantly on post-training measures, (ii) microteaching was not found to be superior to conventional training methods in its effect on teacher's classroom performance, and (iii) microteaching was a superior training strategy in that it could achieve similar results as traditional training in only one fifth of the time. This latter finding has also been reported by Allen and Ryan (1969). In other studies at Stanford, traditional training procedure was not compared with microteaching procedure but

use of the new technique was evaluated in terms of gain in teaching competence from firstt to last microteaching sessions and the results were found to be significant (Fortune et al.,1967; Cooper et al. 1966). At the University of Wisconsin, in one study by Bloom (1969), microteaching was used in the Interns Teaching Programme. The programme was meant for college graduates having little prior background in education. The findings were that (i) the supervisors who observed the interns were more critical in identifying strength as well as weaknesses in teaching performance, (ii) the supervisors could see that the interns were more confident while teaching, and (iii) microteaching interns felt that the total effect of microteaching clinic added relevance to the training procedure.

During 1967-68, at Texas Technical University, Bell (1968) took up one experiment in microteaching with the primary purpose of determining the effect of training upon specific teaching skills of student-teachers. Among others, one of the objectives of the study was to identify the relationship between the demographic variables of student-teachers and improvement in their performance. The study was carried out with twentytwo home-economics seniors as the subjects and the skills selected were establishing set, reinforcement, questioning and closure. The findings of the study were that (i) microteaching was relatively more effective than the usual form of training provided by pre-service and student-teaching experience, (ii) there was no statistically significant relationship between the improvement made in teaching by the

the experimental and the control group and certain demographic variables which indicated that there was a possibility of microteaching to be used successfully regardless of student's background and academic standing, (iii) there was a possibility of using microteaching early in the teacher preparation programme to serve as a screening device for the selection of home-economics education students and (iv) self-evaluation of student-teachers was more realistic and effective in case of microteaching than in case of traditional student teaching.

In one experiment by Britton et al. (1971), effect of microteaching on different aspects of teaching performance was evaluated. Fiftysix students of the first year of a college education course were divided into two groups viz., control group and experimental group. The control group went through the normal preparation of teaching practice while the experimental group was given microteaching training. Peers acted as the pupils and from the experimental group, fifteen pupils were given microteaching practice with video feedback and reteach session. Evaluation of the performance was based on impression of supervisors as well as the school staff. It was found that (i) students who practiced in microteaching situation achieved higher mean scores than those of the control group, (ii) students who had partial training obtained an intermediate mean score, (iii) the training through microteaching had a significant effect on the teaching performance of the first year students in their first continuous school practice period, and

(iv) partial experience together with knowledge of principles of microteaching was helpful.

Davis et al. (1969) studied the comparative effectiveness of microteaching and traditional teacher training methods on student teachers' verbal teaching behaviour. Their measuring tool contained 13 category scores like divergent questions etc. and 9 ratio scores like teacher talk / total talk. Their results showed that the groups differed significantly on 17 of the total 22 scores. The microteaching group asked more divergent questions, probing questions and provided more clarification than did the other group. The study revealed that the microteaching group not only changed their behaviour but also increased the variety of verbal teaching exchanges. Another study by Harris et al (1970) to compare the value of microteaching with conventional practice teaching has also revealed significant changes in prospective science teachers. The experimental group went through a series of six microlessons before their peers and later did significantly better on classroom skills, overall ability to provide background information and letting students develop their own conclusions.

Microteaching can also change student-teachers' attitudes. Goldman (1969) conducted a study where one group of students rereived microteaching experience prior to entering a professional elementary education course. The results of the study revealed that the trainees in microteaching group developed significantly better regard for themselves and became critical of teaching

cliches and other educational concepts. Microteaching can also effectively improve significant aspects of teacher-pupil relations. This is suggested by a study of Emmer et al (1968) as reported by Peck and Tucker (1971). This study showed that the microteaching trained experimental group was superior in determining readiness of the pupils and evaluating pupils' responses. They were also superior in making use of pupils' ideas, used more questions and elicited more responses from the pupils.

One study by Reed et al (1970) has shown the general effectiveness of microteaching without comparing it with traditional training methods. The experiment was carried out using microteaching separately or in combination with directive or non-directive lectures. The results indicate that the combination of microteaching experience plus lectures on general technical skills related to teaching (directive lectures) resulted in improving trainees' teaching skills and attitudes towards teaching. In another study by Linbacher (1969) the hypotheses were that the group of students trained through microteaching would receive more favourable pupil evaluation and would be judged by cooperating teachers as ready to assume full classroom responsibilities earlier than the group having no microteaching experience. The results supported the first hypothesis that the microteaching group received significantly higher pupil evaluation of their total teaching experience and of a specific lesson than the

non-microteaching group. The second hypothesis that the microteaching group would be ready to assume full classroom responsibilities earlier was not supported. Microteaching can substantially improve students' skills in evaluative aspects of teaching. This was found in a study by Legge et al, (1972) in which a group of elementary student-teachers who had undergone microteaching programme performed significantly better than the control group in evaluating aims as well as planning and presentation of 45 minute videotaped teaching sequences. The microteaching training programme consisted of five microlessons, each one followed by videotape feedback and self-analysis.

Ward (1969) conducted a survey of microteaching courses being used in secondary education programmes in U.S.A. The general opinion was that where microteaching had been used, the teaching competence of both students and staff and their attitude towards education had improved. Schuck (1971) reviewed pre-service microteaching programmes in a number of American Institutes. According to the findings, some programmes reported that students receiving microteaching training showed a significant improvement in teaching competence when compared with students undergoing more conventional training. Some programmes however, reported that the microteaching trained students were at least equal to those in conventional programmes.

One of the important studies of the effectiveness of microteaching is associated with the work done on mini courses at far West Laboratory, California. Based upon the experience and researches

of Stanford University, Far West Laboratory has developed a series of minicourses designed initially as in-service training programmes. The courses include instructional and model films, teachers handbooks, self-rating forms and detailed instruction to teachers about how to improve their teaching skill without supervision. Thus each mini course is virtually an autoinstructional package on a specific skill for use in self-administered microteaching. Borg et al (1970) have conducted a field study on mini course - 3 viz. effective questioning in classroom discussion - secondary level and the results reveal significant and consistant immediate and long-term effect of the course as indicated by measures of pre-course and post-course performances. Acheson et al. (1971) studied the effectiveness of mini course-9 viz. thought questions in intermediate grade with questioning strategies. They found that the mini course achieved its goal of training teachers to ask significantly greater percentage of higher cognitive questions. Yet, another study by Shea (1971) has demonstrated the effectiveness of mini course used in combination with practice teaching in developing skills in students in pre-service teacher education programme.

To sum up, the studies in the effectiveness of microteaching support its use in teacher education. Microteaching significantly facilitates the acquisition of teaching skills and also develops favourable attitude towards teaching.

2.4.2 Modelling : Modelling is one of the most important component of microteaching. A model is taken to mean a live, written, audiotaped, videotaped or filmed teaching episode which can provide a short and clear example of a specific skill that a trainee has to practice. Models may be presented in three formats, viz. (i) perceptual format in which a learner views a film or videotape of the teaching episode; (ii) symbolic model based upon written transcription of the teaching episode, and (iii) symbolic model comprising a written description or definition of the teaching skill in terms of its component behaviours. There is ample evidence that careful use of teaching model produce significant learning of skills but it has not yet been established which alternative type of modelling approach would be most successful in a particular situation.

A number of studies have examined the relative efficiency of perceptual models like film or videotape, symbolic models like written teaching episode or description of the skill and also audio models like audiotaped teaching episodes. Orme (1966) found that perceptual modelling led to significant greater gains in the skill of probing questions than did the symbolic modelling. Allen et al. (1967) report that for questioning skills, symbolic models appeared to be as effective as perceptual models. One study by Berliner (1969) reports that for higher order questioning skill, perceptual modelling was not more effective than symbolic modelling. Studies of Allen, et al.(1967),

Koran J.J. (1971) and Acheson et al. (1974) have shown that both symbolic and perceptual models of verbal teaching behaviour lead to significant change and find no difference between the relative effectiveness of the two formats. An exception to this is a study by Koran M.L. (1969) that has shown that, though both the formats were superior to a control, the perceptual format was consistently more effective than the symbolic one. As against this, a study by Phillips (1973) reports that symbolic modelling was a better instructional method than perceptual modelling. These studies were based upon the questioning behaviour and it can be inferred that both symbolic and perceptual models can bring about changes in teachers' questioning behaviour and there is little support for the extra cost of perceptual modelling. However, as Borg et al. (1970) have shown, it has greater motivational value. Perceptual models are more interesting. Most people would rather see the demonstration than read about the skill.

Goodwin (1972) evaluated the effectiveness of symbolic and symbolic-live models against a control group not receiving a model.The results revealed that symbolic modelling was better than symbolic-live modelling or no modelling. White (1968) evaluated the effectiveness of audio-taped model in teaching pre-service teachers to use indirect verbal behaviour. The experimental group listened to the tape three times and read aloud a transcript during the third listening. The experiment

showed that the indirect verbal behaviour of the experimental group was significantly better.

The incorporation of a form of contiguous cueing in model tends to increase its effectiveness. Studies by Young (1968) and Ebert (1970) have shown the importance of cueing and giving written or verbal instructions along with the perceptual model to assist students in discriminating the skills. Young carried out the investigation at Stanford wherein a teacher stood before a camera and gave discrete examples of teaching skills, to a complete model, which was a demonstration of the skill in lesson context. Turney et al (1973) have observed that making students aware of instances of the skill or its components during the model's presentation is accepted as being basic. A study by Claus (1968) reports that in developing higher order questioning skill, perceptual models accompanied by verbal cues from the supervisor were more effective than feedback with or without cueing, in producing the desired behavioural change. McDonald et al (1967) have also demonstrated the superiority of modelling which involved cueing the significant aspects of model's behaviour as they occured on the videotape. Young (1969) reports about contingent and non-contingent methods of focussing the attention of the viewers on the salient points of the model. Contingent forms was provided by addition of auditory and visual cues to a videotaped model while non-contingent focus was provided in a form of written directions and explanation about what to look for in the model.

According to him, the contingent focus proved significantly more effective. An only study in contrast is a study by Brusling (1972) wherein it is reported that a comparison of cued and non-cued models failed to show any significant difference.

Borg et al. (1970) concieve modelling as involving the learner not only in observation of the model demonstrating a set of skills but also in attempting to shape his behaviour to confirm clearly to that of the model through practice. They stress the importance of practice. However, available studies favour the conclusion that modelling can be effective in changing teacher behaviour without a supplementary structured programme of micro-teaching. Friebel et al. (1969) compared mini-course 1 treatment to the course without microteaching practice and videotape feedback. They conclude that the value of microteaching and videotape feedback does not appear to be sufficient to be needed when the participant is a student-teacher. Similar results are also reported by Kissock (1971) who points out that the practice works primarily as a means by which a person can demonstrate what he has learnt from modelling rather than as a means of acquiring the skill itself. According to him, the effectiveness of total microteaching process seems to rest on the effectiveness of the modelling programme in presenting the desired behaviours. In one another study, Wagner (1973) developed a procedure for cognitive discrimination training which involves presenting the trainee with relevant behavioural instances and then teaching him

to discriminate between them. After comparing the effects of such training to microteaching, he concludes that with respect to that have reported significant changes as the result of microteaching.. the present experiment suggests that it was the discrimination training rather than actual practice that resulted into these changes'. Similar result is also reported by Borg eta al. (1974). These studies tend to lessen the importance of practice (teach session) in microteaching, but experience however, suggests that microteaching practice element is generally an attractive and motivating one and this is especially true for pre-service teachers.

2.4.3 Feedback and Supervision : The concept of feedback has become a widely used concept during the recent years. According to Flanders (1970), the term has become rather ambiguous within the field of education, and he makes a distinction between two types of feedback. viz. (i) incidental feedback which refers to the information that a teacher obtains during his work e.g. feedback he gets from pupils while teaching, and (ii) systematic feedback which is information obtained by a teacher as part of a carefully designed inquiry. Teacher educators have been using the technique of providing trainees with feedback on their teaching performance and microteaching provides a potentially more promising concept in the use of systematic feedback. According to Allen et al (1969) it is one of the five main propositions of microteaching that it greatly expands the normal knowledge-of-results or feedback dimension in teaching. Closely linked with the concept of feedback

is the role of supervisors and, the contribution of supervision to the effectiveness of microteaching has been widely researched and provides conflicting results.

Orme (1966) studied the effect of modelling and feedback variables on the acquisition of complex teaching strategies. The effect of self-feedback and reinforcement on the acquisition of the skill of reinforcement of pupil-participatory responses was studied and it was found that the most effective single feedback variable was self-viewing of videotaped recording with reinforcement and cue-discrimination training. There was no significant difference between group that received perceptual model training and the group that received supervisor feedback. Wragg (1971) of Exeter University, U.K., compared the effects of combination of systematic and unsystematic as well as visual and non-visual feedback on the behaviours of student-teachers. The types of feedbacks were (i) videotaped recording and Flander's Interaction Analysis feedback, (ii) videotaped recording only, (iii) Flander's interaction analysis feedback only and (iv) no feedback. Results showed that the students who had received type (i) feedback vis. videotaped recording as well as information about their interaction, lectured less and were able to elicite more spontaneous talk from the children during the reteach stage.

The technical skills investigations at Stanford (Berliner, 1969) have consistently revealed that videotape play-back of a

student-teacher's performance is an effective feedback device and is especially so when combined with comments from supervisors. However, there are studies which point in the other direction. Hoerner (1968) and Doty (1970) have found no significant difference between videotape recorded feedback and feedback without videotape recording in improving teaching competence. In yet another study by Klingstedt (1970), three feedback procedures were used on different groups in improving the skill of stimulus variation. The three types of feedbacks were (i) supervisory feedback in form of verbal and written prompting and cueing by supervisor and peers along with the viewing of videotaped recording, (ii) supervisory feedback along with listening to an audiotape recording of the teaching performance, and (iii) the supervisory feedback only. The study reports no significant difference in the effectiveness of the three types of feedback.

Facilities of mechanical replays of microlessons have categorised the researches into two areas, viz., (i) comparison of videotape and audiotape feedback and (ii) self-viewing and information selection. So far as the use of video or audio recording is concerned, the video alternative generally seems to be more effective in spite of studies reporting contrary. According to Perlberg (1970), audiotape recording is limited to verbal interaction only and cannot provide a complete picture. McAleese (1973) also supports the view and indicates that micro-teaching is more effective if both sound and vision recordings

are made. According to Stones et al. (1972), the availability of videotape recordings enhances the effectiveness and flexibility of microteaching.

In spite of the attractiveness of the idea and the novel concept of CCTV, there are studies that have shown that audio recording can be equally effective or more effective than video recording especially for the development of teaching skills which are mainly verbal ones. In one study by Ward (1970), the effectiveness of four types of feedback in acquisition of questioning skill was compared. The feedback types were (i) Feedback through videotape recording, (ii) Feedback through audiotape recording, (iii) Feedback through a combination of videotape recording and a model audiotape recording and (iv) reflective evaluation without any recording equipment. It was found that videotape feedback alone was relatively ineffective and audiotape feedback alone was found to be effective in changing behaviour, especially in increasing the instances of probing questions. According to Ward, 'apparently the necessity to listen intently without visual concentration provided sufficient stimulus to affect and to develop the questioning ability of the teachers. It is possible that audiotape recorders are grossly underrated.' In one another study by Shively et al. (1970) the feedback techniques used were (i) videotape feedback, (ii) audiotape feedback, (iii) supervisor's observation of the live lesson and (iv) pupil feedback. They report that audiotape feedback produced the greatest amount of change as against

videotape feedback which was relatively weak in producing change. In a study by Gall et al. (1971), audio and video feedbacks were compared in terms of their effects on the acquisition of teaching skills, in mini-course - 5, viz. Individualizing Instruction in Mathematics. They report that the two forms of feedback were generally equally effective. Acheson et al. (1971) compared two groups where group A was given videotape instructions and videotape feedback while group B was given written instructions and audiotape feedback. They conclude that the audio microteaching group was as successful as, or more successful than the video microteaching group.

It seems that the effectiveness of videotape feedback as a part of microteaching procedure depends upon the process of information selection, and as MacLead (1973) has pointed out, little is known about information selection carried out by the viewer when viewing his own teaching performance. Video replaying can be useful as a tool of feedback only when the viewer knows what behaviours are expected of him and uses the video replay to judge how far his behaviour deviates from the desirable. Saloman et al. (1969) in their study investigated the reported observation of the students who taught lessons for which they were given no detailed instructions on desirable behaviours. They found that the majority of the reported observations were concerned with physical appearance (Mdn. 57.8%) while observation concerned with teaching behaviours were relatively rare (Mdn.17.9%).

Many researches have focussed upon the contribution of supervisors during the feedback stage and as the results are conflicting, it is difficult to draw clear conclusions. According to Borg et al. (1970) the available evidence suggests that the function of the supervisor can be served equally effectively by other means and if perceptual modelling and videotape feedback are present, supervisory feedback is not necessary. Griffith, (1972) argues that efforts to justify supervisor or no supervisor involvement in microteaching is premature. There are evidences in favour of supervisory feedback. McDonald et al. (1967) claim that the single most effective variable in their study was self-viewing accompanied by comments from the experimentor (supervisor). Morse et al.(1970) also suggest that students do profit by personal supervisory conference. Acheson (1964) and Young et al. (1971) found no significant differences between supervised and unsupervised groups.

Berliner (1969) reports two studies at Stanford indicating the important role of supervisors. The skills under study were reinforcement and probing questions. Three types of supervisory feedbacks were considered, viz. (i) self-analysis, (ii) supervisor's reinforcement each time the student used the skill, and (iii) supervisor's reinforcement along with discrimination training. Results were in favour of supervision along with discrimination training and self-analysis was found

to be the least effective. As against this, there are studies that indicate that the presence of a supervisor is not always necessary in feedback phase. Sadker et al. (1972) cite a study by Harrington (1970) wherein criticism by self, another student, fellow instructor and supervisor were judged equally effective. The mini-courses of Far West Laboratory have shown that when highly structured materials are available, self-evaluation by teacher proves effective. Dugas (1967) has observed that only when a teacher is proficient in self-evaluation his growth as a teacher can continue. Davis (1970) maintains that self-analysis is an important objective of the teacher education programme as at latter stage in school, most teaching occures isolated from other adults.

This apparent ineffectiveness of supervision in many feedback situations can be explained in terms of poor supervision; yet, in spite of relative weakness of supervision, student-teachers do seem to prefer assistance of a supervisor. McIntyre (1971) compared the effectiveness of three approaches in microteaching supervision, viz. (i) individual conference with tutor-supervisor, (ii) groups of three students working with a supervisor and (iii) group of three students working alone. In spite of no significant differences among the groups at the end, it was observed that most students considered it advantageous to have a tutor so that they can benefit from authoritative guidance. Gibbs (1973) has also observed a similar attitude in students at the New University of Ulster. Borg et al. (1970) suggest that skillful supervision can diagnose the reasons for failure in individual

cases and can prescribe alternative training and this is a function which no other mode of feedback can fulfil.

With the available studies, the conditions under which the role of supervisor is effective in promoting skill acquisition remains an undecided issue. However, it seems that the effectiveness of supervision depends upon some factors. Studies by Claus (1969) and Resnick et al. (1970) have shown that the nature of modelling experience provided influences the effectiveness of supervision. Claus found that supervision which emphasises reinforcement and cueing is more effective during the replay critique session. Thus, the effectiveness of supervision may depend upon the way in which other factors in microteaching programme are arranged. The same study by Claus (1969) and one other study by McKnight (1971) suggest that the effectiveness of supervision may depend yupon the stage of training at which supervisors are involved. Supervision seems to be more effective after initial basic skills are acquired by the students. A study by Johnson et al. (1970) has shown that the students expect their supervisors to give them expert help in planning, conducting and evaluating their microteaching and also to give them opportunities to find their own styles of teaching. Thus, the effectiveness of supervision may depend upon the expectancies students have about the ways in which supervisors can be helpful. The study by McIntyre (1971) cited before also suggest that the contribution of supervision may be more strongly reflected in attitude change rather than immediate behaviour change. Effectiveness of supervision may also depend upon the nature of supervisory feedback provided. In Claus (1969),

supervisors merely classified each question in one of the eight categories and informed the students accordingly while in Morse et al. (1976), the supervisors employed generally non-directive techniques. It seems, as Kise (1971) suggests, the effectiveness of supervision is a function of the kind of supervising strategy used.

Feedback from peers alone or combined with supervisory feedback has also been a theme of research in some studies. Tuckman et al. (1968) compared four feedback conditions, viz. (i) pupil feedback alone, (ii) supervisor feedback alone, (iii) both pupil and supervisor feedback and (iv) no feedback. The study revealed that treatments involving pupils, viz. pupil feedback alone and pupil feedback combined with supervisory feedback produced significantly greater change when compared with the other two types of feedback. An interesting result was the comparison of the two treatments involving pupils where it was seen that supervisor feedback when combined with pupil feedback failed to produce any additional effect other than that accounted for by pupil feedback alone. Young (1970) compared the effectiveness of tutor supervisor with colleague-tutor team and it was found that students working in teams performed significantly better. In yet another study, Belt (1967) used classmates to assist supervisors in the evaluation of microlessons. He reports that the trainees agreed that comments and suggestions made by fellow students were definitely valuable. McIntyre (1971) found no significant differences between the performance of students who worked in groups with tutors and those who worked in groups

~~worked-in-groups~~ without tutors. Shively et al. (1970) found that supervisor feedback, based on STCAG forms completed by microteaching pupils, was effective in producing change measured by pupil ratings but the mode of feedback was not highly valued by the students.

To sum up, it can be seen that feedback phase of microteaching as well as role of the supervisor in microteaching has been investigated at large, though with a very few consistent results. There is evidence to suggest that mechanical devices, tutors, peers and pupils can provide feedback resulting in changes in teaching behaviour and as against this there are also studies which point out that such feedback can be ineffective. It seems that modelling, supervision and feedback are interdependent and selection of the one affects the other. Much of the success of microteaching will depend upon supervisor's competence during modelling phase, facilities available for feedback and the technique adopted, and, last but not the least, supervisor as an important source of feedback and guidance encouraging students in self-analysis.

2.4.4 Attitude Towards Microteaching : Considering the reforms in teacher education and especially that in the field of practice teaching, it is evident that a major stimulus for the reforms has been the evidence of negative reactions from student-teachers towards the existing programmes. Thus, along

with other aspects being researched in microteaching, it was imperative to know how well it is being accepted by the student teachers and to understand their attitudes towards this new technique.

Fortune et al. (1967) report that in general students' reaction towards microteaching has been favourable one. They assessed the attitudes at Stanford Summer Microteaching Clinic, 1965, wherein a questionnaire was used to evaluate students' acceptance of the programme. It was found that 60% of the students declared microteaching experience as very valuable. Dugas (1967) also reports that experienced teachers also react positively to microteaching. In yet another study at Michigan State University, Bloom (1969) reports that students believed that they gained in self-confidence in working with children and acquired insight into techniques of teaching and teacher-pupil interaction. In Ward's (1970) survey of microteaching programmes, the most frequently reported changes were greater understanding of the teaching process, greater interest and enthusiasm towards education, increased self-confidence and greater concern for self-evaluation and self-improvement. Gibbs (1973) surveyed the reactions of the education students towards microteaching programme at the New University of Ulster. Majority of the students were favourably disposed to microteaching. One weakness, however, was brought to light, viz. the relation between the skills studied and the psychological theory was not adequately established.

At Stirling University, where microteaching was introduced by Professor Elizabeth Perrott, extensive study is reported by McIntyre et al. (1977). Their study was based on the questionnaire responses of students who had experience of microteaching during the first two and a half year at Stirling University. The questionnaire covered several aspects of microteaching programme, viz. questions for timing, skills of teaching, tutor and peer feedback, components of microteaching and effects of microteaching-centred courses upon the students. The report that the majority of the students found most aspects of microteaching interesting and rewarding as expressed by fairly clear preferences on most issues. One another interesting point was brought to light that though microteaching is very expensive in manpower, equipment and organization and various resource requirements must be minimized for the programme to be economically viable, the students' reaction suggest that the more expensive alternative is preferable. Also the students tended to prefer longer lessons and felt the need for supervisors during the feedback stage. Opinions of the students sought after their first secondary school practice about how valuable they thought microteaching had been, the response was generally luckwarm, the most frequent comment being that the relevance of microteaching to normal classroom was limited by the absence of discipline problems in microteaching.

2.4.5 Indian Studies : In India, the idea of adopting microteaching as an innovative practice in teacher education started disseminating by early seventies though early efforts in 1967 and 1970 have also been reported. Microteaching in India has

developed, barring a few instances, in absence of CCTV or the facilities for videotape recording. The movement has slowly gained ground with efforts from the institutions like NCERT, CASE at Baroda and other University Departments all over the country.

Tiwari (1967) led a project in microteaching at Government Central Pedagogical Institute at Allahabad. The study reported that the use of microteaching technique can be used profitably in teacher training institutions and also in schools. Shah (1970) conducted an experiment where audiotape recorder was used to record the performance of teachers in microteaching setting without CCTV. The experiment revealed that listening to audiotape recordings after the teaching session helped the teachers to correct their mistakes. Prakash et al. (1974) report a study where audio-cassette recordings were used in the supervision of student-teachers. The study showed that cassette recordings provided an accurate record of verbal interaction in the lesson and student-teachers could locate various shortcomings in their lessons, viz. frequent unnecessary reframing of questions, lapses regarding content, lapses regarding language, lack of variety in approach, teacher dominatione etc.

Chudasama (1971) tried out an experiment in microteaching with an experimental group of six students at the Faculty of Education and Psychology, M.S. University of Baroda, Baroda. The objectives of the study were (i) to know the extent to which microteaching procedure could help the student-teachers in developing more indirect teacher

behaviour, and (ii) to see whether interaction analysis can profitably be integrated in microteaching procedure. The study showed that microteaching training helped student-teachers in developing skill in questioning and ensured better pupil participation. Marker (1971) compared the performance of students teachers trained by microteaching and conventional approaches. Five skills, viz. set induction, stimulus variation, questioning, reinforcement and responses to pupils' answers and closure were tried on a group of Geography method students. Microlessons were given in normal Geography classes and were recorded on tape and feedback was given the following day. Here also microteaching was found to be quite effective.

Passi et al. (1974) conducted a study during 1972-73 at CASE, M.S. University, Baroda, with a view (i) to see the feasibility of microteaching in colleges of education and (ii) to study the attitude of student-teachers towards microteaching in simulated as well as real classroom situations. The experiment was carried out on a sample of twelve students who were trained in four skills, viz. questioning, reinforcement, silence and non-verbal cues and illustrating and use of examples. The study revealed that (i) student-teachers attitude towards the feasibility of microteaching in simulated and real conditions was favourable, (ii) student-teachers had a neutral attitude towards the provision of time, microteaching units covered and the role of supervisors, (iii) they showed a favourable attitude towards the technique in general, component skills and provision for feedback, and

(iv) they favoured the reteach session.

Ram Pangotra (1973) studied the effectiveness of different types of feedback on the classroom behaviour of student-teachers wherein microteaching technique was not adopted but the technique of interaction analysis was adopted for observing the classroom behaviour. The different sources of feedback were (i) self feedback, (ii) college supervisor and (iii) the external observer. The findings were that (i) the student-teachers who received self feedback proved better teachers and (ii) feedback from college supervisor and external observer was also effective when compared to control group which received no feedback. A related study is by Tripathi (1975) wherein the study was conducted in schools of Ajmer, Jaipur and Sikar to compare the effectiveness of three methods of classroom supervision, viz. (i) planned supervision by the head-master, (ii) team supervision by two senior subject-teachers and (iii) self supervision by the teacher himself. The study revealed that the mean gains in the performance of teachers under self-supervision were greater than that under the other two methods of supervision.

Dosajh (1974) compared different types of feedback for modifying teachers behaviour through microteaching and use of videotape recordings. The experiment was conducted at the Technical Teachers' Training Institute, Chandigarh and the sample consisted of twelve students of Electric Group third Semester. The groups were equated on the basis of Advanced

Progressive Matrices Test and three methods of feedback were tried vis. (i) videotape and discussion of evaluation with supervisor for group A, (ii) videotape and discussion of evaluation with supervisor as well as fellow trainees for group B, and (iii) videotape and discussion of evaluation with supervisors with self-evaluation for group C. The results revealed that group C showed maximum improvement in teaching behaviour, thereby proving self-evaluation as a powerful motivation for change. Dosajh (1975) also tried to study change of teaching self-concept through microteaching. Teacher trainees were asked to evaluate their teaching performance before and after at least two sessions in microteaching with CCTV, and their self-evaluation was compared with their supervisor's evaluation. In all cases, there was a very significant change in teaching self concept.

Singh (1974) studied the comparative effects of conventional method, microteaching technique and training in Flander's Interaction Analysis category System (FIACS), as a means of changing classroom behaviour of student teachers. The sample consisted of twenty student teachers of Tilakdhari College, Jaunpur, Uttar Pradesh. The major findings were that (i) microteaching significantly changed the behaviour of student teachers as compared to traditional training approach as well as training in FIACS and (ii) training in FIACS changed verbal teaching behaviour of student teachers significantly as compared to the traditional approach only.

Bhattacharya (1975) investigated the usability of micro-teaching technique and use of audiotape recording to train Polytechnic teacher trainees at Technical Teachers' Training Institute, Calcutta. Training in indirect teacher behaviour through microteaching was provided for the experimental group while the control group went through the conventional pattern of student-teaching under supervision with stress on indirect teacher-behaviour. It was found that audiotape recording and microteaching would develop successfully skill of 'indirectness' than the conventional practice teaching training. The attitude of teacher trainees towards the microteaching technique of skill development was also found to be highly favourable. Incidentally, it was also found that there was no relationship between skill development through microteaching and teaching experience. Thresiamma (1975) at Baroda studied the effectiveness of feedback in the development of the skills of recognising attending behaviour and teacher liveliness in in-sefvice teacher and the results were found to be encouraging. Paintal (1976) compared the effects of microteaching upon general teaching competence with varying sources of feedback under simulated conditions. The skills developed were reinforcement, stimulus variation, probing questions, illustrating and explaining; and general teaching competence was measured by a tool consisting of twenty items to be scored on a seven-point scale. The results revealed that microteaching training technique led to higher GTC as compared to traditional training practice. It was also found that feedback by a supervisor was more effective than

that by the peer group. In yet another study, Vaze (1975) studied the effects of modelling and microteaching on the acquisition of questioning skills. The study showed that microteaching appeared to be the best treatment for acquiring the skill in asking probing questions when tried at the beginning of the year. There was no significant difference between the symbolic modelling treatment and audio-modelling treatment though symbolic modelling was found to be a better treatment for acquiring the skill of probing questions.

The results of various studies undertaken in microteaching were encouraging as regards application in Indian conditions. These studies were, however, sporadic and lacked comprehensiveness to arrive at wider generalizations. In order to achieve this, a large scale field study in microteaching was organised in 1975-76 by the Department of Teacher Education, NCERT, in collaboration with the Centre of Advanced Study in Education, M.S. University, Baroda and other nine colleges as well as university departments of education (Das et al. 1976). The objectives of the study were (i) to compare the effectiveness of microteaching technique with the traditional method in the development of general teaching competence, and (ii) to try out the microteaching technique with different variations so as to determine the differential effectiveness of various treatments in the development of general teaching competence. All the institutions followed a parallel group experimental design where the samples were randomly distributed into three equal groups. One of the groups received the standard microteaching technique (SMT), the other received the modified microteaching technique (MMT) and the

third received the traditional technique (TT) of teacher training as the treatments. The treatment of MMT was the same as that of SMT except for the planned variation in one of the components of microteaching. The analysis of the collected data showed that the GTC scores of student teachers trained through the SMT as well as MMT were higher than those of the student teachers trained through TT and there was no significant difference between the GTC scores of the SMT and MMT groups, though the mean score of the MMT group was higher than that of SMT group. There was also no difference in the acquisition of general teaching competence of the student teachers when the feedback was given either by a peer group or a supervisor.

Several other Doctoral studies have been conducted at the Faculty of Education and Psychology, M.S. University, Baroda. Joshi (1977) studied the effectiveness of microteaching as a technique in teacher education programme. The objectives of the study were to inquire into the effectiveness of instructional materials synchronised with microteaching approach in acquisition of teaching skills and to inquire into the effects of instructional materials along with microteaching upon the attitudes of student teachers towards teaching. The study revealed that student teachers exposed to the treatment of skill based on instructional materials synchronised with microteaching scored higher in the acquisition of skills. The experimental group scored higher in the acquisition of general teaching competence and so far as attitude towards teaching was concerned, the groups did not differ significantly.

Lalithamma (1977) studied classroom instruction with a view to identifying teaching skills required for effective classroom instruction and to prepare and validate instructional materials for developing some of the skills identified. The study identified three major categories of skills, viz. (i) skills of planning like skill of identifying learner's entry behaviour and skill of writing instructional objectives, (ii) skills of instruction like questioning, pupil understanding, pupil participation, pupil attention and classroom management, and (iii) skills of testing like writing variety of test items and making plausible interpretations. The study also revealed that microteaching approach was better than the traditional approach in the development of skills. Passi (1977) studied the effect of instructional materials and feedback upon the development of teaching skills.The skills selected were set induction, closure, reinforcement, fluency in questioning and probing questions. Two experimental groups were trained into two different clusters of skill, and the control group received traditional training. The findings were that (i) the comments of supervisors clustered around a few aspects of teaching like questioning, explaining etc. but aspects like content selection, remedial measures etc. were ignored, (ii) experimental groups differed significantly from the control group on general teaching competence scale and (iii) the three groups did not differ so far as their attitude towards teaching was concerned. Sharma (1977) studied the effect of different techniques of feedback upon the attainment of teaching skills.

The objectives of the study were (i) to study the feasibility of microteaching as an innovative technique in Indian conditions without the use of hardware and (ii) to study the differential effect of three techniques of feedback viz. discussion, oral and written, on the attainment of teaching skills related to stimulus variation. The findings of the study were that (i) discussion was the most effective technique of providing feedback by peer supervisors, (ii) written feedback was effective in the case of skill of shifting sensory channels, and (iii) hierarchy among three techniques of feedback, so far as their effectiveness was concerned, was discussion, written and oral, and (iv) student teachers who had undergone microteaching treatment showed favourable attitudes and opinions towards the programme.

Work in the area of microteaching has also been reported from the Department of Education, South Gujarat University, Surat. Shah (1975) reports a case-study on microteaching without hardware, a project sponsored by UNESCO, Paris. Citing his experience in microteaching with the help of CCTV at Technical Teacher's Training Institute, Madras, Shah argues that a developing country like India would be required to think of a strategy which is relatively less expensive but considerably effective. A sample of twentyone student teachers from V.T. Choksi College of Education, Surat was selected for the study and three groups were formed, viz. one for Science, one for Mathematics and one for Gujarati. The

objective of the study was to provide small teaching encounters to student teachers so that they would improve their ability to communicate in the classroom. Ability to communicate was categorised into three aspects, viz. spoken, written and oral and a rating scale was prepared to evaluate communication in classroom. For the Science group, evaluation was also done on FIACS. It was found that microteaching sessions did help the student-teachers in improving their communication in classroom and that the students did modify their behaviour in the context of interaction analysis. A cost-analysis for microteaching programme was also carried out and it showed that additional cost will be nil if microteaching is taken up as a regular programme of the institution, but if the programme is taken up as an additional programme, the cost would be Rs. 12.50 per unit of microteaching i.e. a complete cycle from teach to recritique.

A two-year project, supported by Leverhulme Trust, involving a co-operative venture in transfer between University of Lancaster, CASE at Baroda and Department of Education, South Gujarat University, Surat, was undertaken in 1976 and a self-instructional microteaching course incorporating the skill of questioning was developed in English and Gujarati. As a further study, Shah (1979) developed and tried out a multimedia package on effective questioning in context of microteaching. Multimedia package referred to the three sensory channels, viz. (i) audio chanel i.e. model lesson and audio cassettes, (ii) audio-visual chanel i.e. audiotape cum slide programme and (iii) visual chanel i.e. teachers handbook. Multimedia package succeeded in bringing

about improvement in the questioning skills and it was found that the teachers who were exposed to the treatment of self-instructional multimedia package course showed significant improvement. A similar study by Sheth (1980) aims at evolving a strategy for developing teaching skills in secondary school teachers, and the skills selected for the study are silence and nonverbal cues, writing instructional objectives, questioning, explaining and illustrating with examples.

The British Council Division, British High Commission, has also been active in promoting the idea of microteaching in India. In March, 1975, they organised a three-week seminar on teacher education where modern techniques of microteaching, interaction analysis and simulation were dealt with. CCTV equipment was also used but the stress was on simple equipments like audio feedback and appraisal guides (Culling, 1977). This seminar was followed by one organised at Delhi in association with NCERT. Since then, British Council Division has been actively involved in training teacher educators in this new approach. Shukla et al (1976) report a workshop in microteaching where casual interviews with student-teachers showed that micro-teaching was time-consuming in view of the fact that they had to give a prescribed number of lessons besides practising the skills of teaching in microteaching sessions. They suggested that the technique should be used as a remedial measure. Deshpande et al. (1977) took up a study to locate strength and weaknesses of

microteaching as a training devices and to throw some light on performance of freshers and experienced teachers . It was found that microteaching programme was effective in bringing the freshers on par with the performance of experienced student teachers for their first practice lesson. A majority of the students opined that microteaching technique helped them in facing real class. It was also reported that actual school children form a better micro-class and if peers are to act as pupils, they require more training in role playing.

To sum up, microteaching movement in India has gained momentum and active efforts are being made to adopt this innovative technique in more and more teacher training institutions. However, this new aspect of training has been mostly limited to pre-service training of secondary school teachers and only sporadic work has been done on in-service teachers as well as at primary teachers' level.