CHAPTER I
INTRODUCTION
CHAPTER I

INTRODUCTION

The present study entitled "A Comparison of Feedbacks through Flanders' Interaction Analysis Category System, Analysis of Classroom Transactions, and Videotape in the Modification of Technical Teacher Behaviour in Microteaching Sessions" was conducted with a view to identifying the effective modes of feedback for improving various aspects of teaching skills in technical teachers and in their overall teaching performance.

Teaching is considered to be a highly complex activity consisting of a number of acts or skills that are identifiable. Allen (1966) has said that teaching can be broken down into simpler components, thereby making the learning task more manageable and meaningful, but Turney et al. (1973) are of the view that teaching can be described in terms of component skills and that these are identifiable and therefore capable of independent practice. Many attempts have been made to identify and analyze patterns of teacher behaviour in the classroom which constitute teaching, and in this connection, the works of Flanders (1960), Furst and Amidon (1962), Komisar (1966), Nelson (1966), Pankratz (1967), and also of Barr (1948),
Smith (1963), and Gage (1967) are worth mentioning. Different kinds of dissections of teacher behaviour and its classification into various categories are now available (Simon and Boyer, 1967; Baral et al., 1968). According to such classifications, teacher behaviour can be labelled as 'direct' or 'indirect', 'integrative' or 'dominative', and 'democratic' or 'authoritarian'. Teacher behaviour may vary from one kind of training situation to another, yet it is possible to label his behaviour as direct or indirect (Verma and Ansari, 1975). Such classifications however are still general in nature, as they can further be analysed into more specific components called 'Teaching Skills'. Many lists of teaching skills have been developed and are now available (Allen and Ryan, 1969; Borg et al., 1970; McIntyre et al., 1972; Flanders, 1973; Brown 1975; Lalitha, 1977). A teaching skill may be defined as 'a specific aspect of teacher behaviour or a set of teacher behaviours which is especially effective in bringing about necessary and desirable changes in the learners'. Viewed in this context, teacher behaviour must be closely related to learning by the students and there are research evidences to show the influence of teacher behaviour on student learning and shaping of learner behaviour in the classroom.

As early as 1931, Fryer has observed that students are fond of democratic teachers and that they develop
interest in learning under them. Perkins (1950) also has observed similar findings. Anderson (1939) and Lippit and White (1943) have carried out exploratory studies on teacher behaviour. In 1946, Anderson et al. have found that the behaviour of teachers tend to be reflected rather faithfully in the behaviour of the students. Some of the earliest studies in the classroom, such as that by Mech, Hurst, Auble and Fattu (1953), showed significant relationships (under experimental conditions) between teacher behaviour (Teacher feedback) and pupil learning in Arithmetic, but Korsh and Wilder (1954) have concluded from a review of research findings from 1900 to 1952 that 'no single, specific, observable teacher act has yet been found whose frequency of occurrence is invariably (and) significantly correlated with student achievement'. Snider (1966), Birkin (1967), and Measel (1967) also could not find any positive relationship between teacher acceptance and use of pupil ideas and product variables. Anderson and Brewer (1946), and Cogan (1956) have reported that students do more school work under an integrative teacher with more initiation and spontaneity. Flanders (1960) has found that pupils of indirect teacher learned more according to tests of written achievement. Amidon and Flanders (1967) and La Shier and Westmeyer (1967) have also obtained a similar finding. Although some of the research reports seem to reveal
contradictory findings, a majority of research evidences do indicate a positive relationship between teacher behaviour and student learning. The process–product studies have attempted to relate observed teacher behaviours to student outcome measures (Mitzel, 1960) and they have produced some of the best variables on the relationship between teacher behaviour and student achievement, such as clarity, enthusiasm and type of questions (Rosenshine, 1970a & b). Correlational and experimental studies have suggested that movement, gesture, and voice inflections comprise at least part of the variable 'Teacher enthusiasm' (Rosenshine, 1970c) and that this variable is significantly correlated with student achievement in five of the studies, while it was found to be positively correlated, but not significant in the case of other studies (Solomon et al., 1963; Kleinman, 1964; Fortune, 1966, and Wallen, 1966). Reports of research studies on teacher behaviour and student achievement and attitudes (Taba et al., 1965; Gallagher, 1965; Snider, 1965; Politzer, 1967; Soar, 1968; Finney, 1970; Baker and Snow, 1972; Clark, 1976), teacher effectiveness in explaining and student ratings (Belgard et al., 1967), teacher reinforcement and student achievement (Seers et al., 1972), and teacher questioning and student learning (Shavelson et al., 1972) are also available. Nelson (1965), Flanders (1965), Parakh (1965), Dodl (1966), Morrison (1966), Hurst (1967), Ferman
(1967), Lashier (1967), Schantz (1967), Johnson (1968), Soar (1968), Weber (1968), Flanders (1969), Alexander (1970), Flanders (1970), Mitra (1970), Schack (1970), and Pareek and Rao (1971) have reported on the various aspects of teacher behaviour that are positively related to student achievement as well as other outcome variables like attitude, independence, creativity, manipulative skills and so on. The above review of research indicate that teacher behaviour does influence learner behaviour considerably and that there is a need for modification of teacher behaviour in the desired direction so as to facilitate student learning.

Numerous attempts have been made to study the modification of teacher behaviour (Ryans, 1960; Getzels and Jackson, 1963; Allen, McDonald and Orme, 1966; McIntyre et al., 1966; Flanders, 1967; Amidon and Rosenshine, 1968; Gage et al., 1968; Koran, 1968a; Rosenshine, 1968; Millet, 1969; Politzer and Weiss, 1969; Sandefur et al., 1969; Resnick and Kiss, 1970; Buch and Quraishi, 1971; Buch and Santanam, 1971; Kise, 1971; Rosenshine and Furst, 1971; Alper et al., 1972; Clark, 1972; Cage, 1972; Lundgren, 1972; Mahoney et al., 1972; Weiss, 1972; Beckum, 1973; Good, Sikes and Brophy, 1973; Moore, 1973; Morton, 1973; Thorsson et al., 1973; Clarks et al., 1974; Hendricks et al., 1974; Hess and Takanishi, 1974; Whitmore et al., 1974; Passi and Malhotra, 1975; Vaze, 1976, and many others).
Gallagher (1965), Clegg et al. (1967), Davis and Tinsley (1967), Farley and Clegg (1969), Crump (1970), Rogers (1970) and Chaudhari (1977) have reported that, training teachers in the knowledge and use of Bloom's taxonomy (or in a form as modified by Sanders) significantly increases the number of teacher questions at the higher cognitive levels than those who do not have such a training. Allen et al. (1966) have found that when specific skills of instrument were presented, the trainees could attach their own performance to that of models without lessening their own individual creativity. In another study, Allen et al. (1967) have found no significant differences between the use of perceptual and symbolic modelling on the acquisition of the skill of asking higher order questions, but that both produced gains on the criterion measure. According to them, positive instances of teaching behaviour have a greater transfer value than negative models, but Koran (1968) has found no significant differences between the effectiveness of positive and negative models on teacher behaviours. Sandefur et al. (1969) have reported that teachers trained in indirect methods of instruction expanded their tendencies to accept feelings, to use praise and encouragement, and to accept pupil ideas. Resnick and Kiss (1970) have found from their study using contrasting multiple models that discriminate modelling
techniques can produce a capacity in the teacher trainee for self-editing which can substantially reduce his reliance on an outside feedback. From their studies on modification of teacher behaviour, Rosenshine and Furst (1971) conclude that 'training procedures which focused on denotable, specific behaviours were more effective than traditional methods courses in changing teacher behaviour'.

In conventional teacher training programmes, neither the practising teacher nor the supervising teacher can focus on specific behaviours or teaching skills, because of the complexity of the teaching-learning situation involved and that is why, probably their effectiveness in modifying teacher behaviour in the desired direction have been severely criticized by many Indian and foreign research workers alike (Upasani 1966; Flanders, 1967; Joseph, 1967; Palsane and Chanchi, 1967; Mallaya, 1968; Sharma, 1968; Marr et al., 1969; Khosla, 1970; Srivastava, 1970; Saikia, 1971; Aspy, 1972; Edlefeet, 1972; Perlberg, 1972; Singh, 1972; Buch and Yadav, 1974; Mehrotra, 1974; Fassi and Shah, 1974; Singh, 1975; Singh, 1977, and others). In spite of the above criticism, all the research evidences do reveal that teacher behaviour is both observable and modifiable, provided appropriate training strategies are employed.

All the learning theorists agree on the value of
feedback in learning (by a student or a student teacher both). Thorndike, one of the earlier educational psychologists, who investigated the nature of human learning has said that it is not only the practice, but awareness of the consequences of one's behaviour that is necessary for improvement, which means 'Feedback' is a necessary condition in any training situation for learning. In fact, student teachers are in a complex learning situation and so, feedback is all the more necessary to bring about necessary improvements in their behaviour. A study on the classroom behaviour of student teachers using different types of feedback and no feedback has revealed that all the student teachers who received some kind of feedback performed better than the no-feedback group (Pangotra, 1973).

When a practising teacher observes the effects of his actions in his students, he is in fact receiving feedback and he may try to modify his actions in the light of the feedback so received. An untrained teacher may be able to observe the effects of his behaviour only intuitively and crudely, with the result that on most occasions any desired improvement is left to chance. Improvement in one's behaviour will depend on his ability to analyse the teaching-learning situation and this ability will largely determine the content of the feedback. Feedback received by a teacher from his own observations and
self-analysis of what is going on about him is known as 'primary feedback'. But in a normal training situation, the student teacher may get feedback from other sources as well, such as observer/supervisor comments, peer group comments, and so on (called secondary feedback). Both these feedbacks play a very prominent role in bringing about necessary improvements in teacher behaviour and that feedback in a training situation is usually multidimensional in nature. But, general, global and subjective comments of the teacher trainee's performance do not produce any significant improvement in the teacher's behaviour (Webb and Baird, 1967) and what is needed is an objective and focussed critique (Stones and Morris, 1972) of his performance. Researchers at Stanford University also concur that selective feedback is more effective. The procedures to be followed to help the student teacher change his behaviour should be consistent with those that he will carry out to help his student to learn and that whenever observation information is feedback to a teacher, it is usually desirable to do so, while the impressions of the situation are still fresh in the minds of both the observer and the student teacher (Flanders, 1970). Immediate feedback is always more effective than delayed feedback. Stones and Morris (1972) also concur with this view. The above discussion reveals that feedback is essential for the modification of teacher behaviour and that it has to be immediate and focus on specific aspects.
Olivero (1964) has said that trainees benefit more from some kind of feedback than from self-analysis, and further researches show that in the absence of external feedback, self-confrontation leads to little change in (teacher) behaviour and that reactions to self-viewing is largely dependent on one's previous position (Salomon and McDonald, 1969; Fuller and Manning, 1973). Morse, Kysilka and Davis (1970) also have reported that the available evidence does not support the value of feedback in the absence of a personal supervisor. In fact, supervisor (observer) comments play a very prominent role in improving the teaching skills of the practising teacher. There is adequate support and evidence for the effectiveness of supervisory feedback in the works of Acheson (1964), Olivero (1964), Orme (1966), McDonald and Allen (1967), McDonald (1968), Tuckman and Oliver (1968), Claus (1969), Johnson (1969), Morse, Kysilka and Davis (1969, 1970), Doty (1970), Flanders (1970), Hake (1970), Johnson and Knaupp (1970), Olivero (1970), McAleese and Unwin (1971a & b), McIntyre (1971), Dosajh (1974b), and Sharma (1976). According to Sharma (1976), Supervisory comments are more effective than Peer group comments, but Dosajh (1974b) observes that self-evaluation is more effective than a discussion with the colleagues of the teacher trainee. Webb and Baird (1967), and Morse and Davis (1970) have
reported that peer group feedback is effective, but a combination of both pupil (peer group in the case of a simulated situation) and supervisory feedback is more effective according to Tuckman and Oliver (1968), while Das et al. (1977) found no significant differences between peer feedback, supervisory feedback and self-feedback. The earlier researches by Blumberg and Amidon (1965), and Blumberg (1968) later have revealed that indirect supervisors were more effective in modifying student teacher behaviour whereas Johnson (1968a) at the University of Illinois has found that different kinds of supervisory approaches have differential effects on skill acquisition by student teachers. In one of the studies, Young (1970) has found that the colleague supervisor teams performed significantly better than a single supervisor in terms of effectiveness. All the research studies discussed above reveal that primary feedback does not produce the necessary changes in teacher behaviour and that secondary feedback from supervisors and peers play a dominant role in modifying teacher behaviour in the desired direction. Also, a systematic feedback focussing on specific aspects is more effective in bringing about necessary improvements in teacher behaviour.

Most of the studies conducted by researchers were concerned with teacher behaviour in general until the development of Interaction Analysis category systems and
use of videotape which made it possible to analyse and study specific aspects of teacher behaviour and thereby improve teaching skills in the practising teachers.

The technique of an Interaction Analysis Category System developed by Flanders (FIACS) has been used by research workers for analysing teaching behaviour in the classroom, for training student teachers as a technique, and as a feedback device. Flanders (1965), Furst and Amidon (1967), Quraishi (1972), Pandya and Seth (1976), Malhotra and Mangla (1977) and many others used FIACS for analysing and studying the classroom behaviour of general teachers. Flanders (1965), Amidon (1966), Amidon and Powell (1966), Amidon et al. (1967), Amidon and Flanders (1967), Furst (1967), Hough and Ober (1967), Kirk (1967), Moskowitz (1967), Storlie (1967), Zahn (1967), Moskowitz (1968a & b), Schalok (1968), Bondi and Ober (1969), Singh (1973), Jangira (1974), and many others have reported the use of FIACS as a training technique for student teachers and one of the major findings was that the behaviour patterns of teachers changed from direct to indirect and that they encourage student participation in their classrooms. Jangira (1974) has found that classroom behaviour training based on FIACS was more effective, in that the experimental group at the end of their student teaching experience talked less, was more responsive to pupils, encouraged more pupil participation, and even initiation during the classroom
discourse, and had more flexibility in classroom behaviour than the control group. Similar findings have been reported earlier by Amidon and Powell (1966), Amidon et al. (1967), Hill (1967), Ober (1967), Davidson (1968), Nath (1971), and Pareek and Rao (1971). Jangira has also reported that the behaviour patterns acquired during the student teaching sessions is carried to the actual field of teaching when they join the schools after training. These reports indicate that training the student teachers in FIACS is effective. Flanders (1963a and b), Amidon and Powell (1966), Simon et al. (1966), Moskowitz (1967), Simon (1967), Davidson (1968), Flanders (1969), Wood et al. (1969), Wright et al. (1969), Holcombe (1971), Nath (1971), and Pareek and Rao (1971) have reported on the effectiveness of the use of feedback based on Interaction Analysis either singly or combined with simulated training of microteaching in modifying the teacher behaviour patterns of the pre-service or in-service teachers in the intended direction. According to Flanders and Simon (1969), the technique of Interaction Analysis (IAA) providing systematic feedback about teaching behaviour is more effective than conventional practices to impart teaching skills to student teachers. At the Department of Education of Exeter University, Wragg (1971) has found that FIACS was quite effective in modifying student teacher behaviour and that a combination of FIACS and Videotape feedback
was rated by the students to be higher than either of them alone. These researches show that FIACS can not only be used for analysing the classroom behaviour of teachers, but also as a training technique and for providing feedback quite effectively. However, use of FIACS as a feedback device for developing specific aspects of teaching skills is found wanting.

Since the introduction of Videotape (VT) by Acheson in Teacher Training Programmes of the Stanford University, many researches have been conducted on the effectiveness of feedback through VT in the modification of teacher behaviour. Acheson (1964) has reported from his studies on the effects of VT feedback and different kinds of supervisory treatments at Stanford University, that pupil participation did not differentiate the treatment groups, and neither direct nor indirect supervision produced significantly greater changes than no supervisory conference. Acheson (1964) and Olivero (1964) both have reported that a conference with VT feedback compared with a conference without it, is significantly more effective in modifying a teacher's behaviour. Orme (1966) has studied the effects of modelling and feedback variables and found that perceptual modelling led to significantly greater gains on the teacher's use of probing questions than symbolic modelling, but that the most effective
treatment of all was viewing a symbolic model and one's own teaching performance with a supervisor providing discrimination training. Later, McDonald and Allen (1967) have also obtained similar findings, but Claus (1968) has found that although the supervisor's contribution to the modelling introductory phase was significantly useful, it added nothing during the VT feedback on the teacher's use of higher order questioning. Sandefur (1967) has found that student teachers trained through VT feedback to maximize their use of indirect teaching methods made their pupils significantly more alert, responsible, confident, and self-initiating than pupils of conventionally trained teachers. In an experiment using VT playback, Goodkind (1968) has observed that the experimental teachers displayed greater awareness of specific personal habits, mannerisms, teaching acts and techniques, greater insight into the classroom, and a greater awareness of the problems of structuring and pacing in their teaching. In an experimental study, Fuller, Peck et al. (1969) have found that feedback from Videotaped teaching episodes when conducted in a highly personalized, open-minded manner, led to significant improvements in the open-mindedness, self-confidence and career dedication of student teachers as well as a tendency to use more initiative and independence. Hake (1970) has reported that Videotape playback of each
student's (teacher) performance made self-evaluation much more meaningful to the student. James (1970) has used film models of teaching behaviour showing direct and indirect teaching strategies in comparison with video recordings of students' own teaching as adjuncts to traditional teaching supervision and she has found that there was no difference in performance after supervision between the group that had the filmed model and the normally supervised group, whereas there was a difference between the group that viewed video-recordings of their own performance and the traditionally supervised group. From their studies on the effects of several manipulations of the conditions of feedback, Reed et al. (1970) have observed that VT feedback although appeared relatively weak in producing change, was very highly valued, but McAleese and Unwin (1971) have reported from the research carried out by Olivero (1970) that the teacher trainees who had the opportunity of seeing the performance and to receive verbal feedback from the supervisors showed greater changes in their behaviour than those who received verbal feedback only. All the above researches reveal that VT feedback is no doubt very effective, but that a combination of supervisory feedback and self-viewing VT playback seems to be much more effective in improving teacher behaviour.
Recently, Pareek and Rao (1970), Such and Santanam (1972), Roy (1972) and many other Indian investigators have evinced an increasing interest in systematic research in teacher behaviour and researches on the effectiveness of different modes of feedback for the improvement of teaching skills is gaining momentum due to the keen interest taken by two national organizations, namely National Council for Educational Research and Training, New Delhi (NCERT) and the Centre for Advanced Study in Education, Baroda (CASE). Both these organizations have conducted a number of studies on teacher behaviour. Two such field experimental studies conducted by NCERT of late have revealed no significant differences between perceptual and symbolic modelling (Das et al., 1976). Another research project carried out by NCERT on 'A Study of the Effectiveness of various components of Microteaching technique in the development of General Teaching competence of student teachers in Secondary Education Institutions' in collaboration with 22 colleges/University Departments of Education, chose the skills of probing questioning, stimulus variation, Reinforcement, Explaining, and Illustrating with examples (Das et al., 1977). CASE has introduced microteaching and Interaction Analysis in the training of teachers and one of the major findings was that the programme is quite effective in bringing necessary improvements in student teachers.
Various research studies on the modification of teacher behaviour so far discussed were all concerned with general teacher education. Technical education has basically three structural components, namely Engineering and Higher education, Polytechnic education, and Craftsmen education, and technical teacher education in India has been neglected for long until the establishment of four Regional Technical Teachers' Training Institutes (TTTI) by the Government of India during the 1960s. Each TTTI is basically aimed at improving the quality of polytechnic education in the respective region through long term and short term training programmes. Elsewhere also, technical teacher education has yet to get the same priority and importance as general teacher education. Hence the amount of research in technical teacher education is quite limited. Perlberg (1969) was perhaps the first person to use microteaching technique to improve engineering instruction by introducing it as a part of teacher education at Technion Institute of Technology, Haifa, Israel. In the field of modification of technical teacher behaviour the number of studies conducted and reported are very few. Perlberg and O'Bryant (1969) while writing on Video recordings and microteaching techniques to improve engineering instruction have observed that adequate feedback may motivate and facilitate the modification of a professor's behaviour. Bhattacharya (1974) has tried out microteaching and FIACS with polytechnic teachers and found it to be more
effective than conventional techniques in the development of indirect teacher behaviour. Dosajh (1974b) took 12 student teachers of the Electrical group and after dividing them into 3 more or less equal experimental groups, each group was given a different type of feedback. He had found that the group which received feedback through VT and discussion of evaluation with supervisor and self-evaluation showed maximum improvement in teaching behaviour than the other groups which received either videotape feedback and discussion of evaluation with the supervisor or videotape feedback and discussion of evaluation with the supervisor and fellow-trainees. In a comparative study on the classroom behaviour of trained and untrained technical teachers in polytechnics using the modified FIACS, Rajamony (1975) has found that the trained technical teachers encourage more student participation in the class-room, praise and encourage their students when the latter express new ideas or seek clarifications, showed greater acceptance of student feelings and ideas, talk less and use more of indirect influence in class-room teaching. In another study on the effectiveness of training cycles on the modification of technical teacher behaviour, Rajamony (1978) has found an improvement of 65.4% in the four teaching
skills of Questioning, Dealing with Answers, Reinforcement, and Stimulus Variation in which training was given, and an overall improvement of 41% in total teaching skills and 32.2% in teaching performance after 3 training cycles of 150 minutes duration each. All these researches reveal that technical teacher behaviour is modifiable and that results are quite encouraging. Research in modification of technical teacher behaviour is still in the developmental stage, but is gaining attention and importance. So, more research is needed in this area.

The review of researches in general teacher education have revealed that feedback (FB) through FIACS and VT have been found to be quite effective in modifying teacher behaviour and that immediate feedback is more effective than delayed feedback. It was also revealed that both supervisory and peer group feedback contributed to the effectiveness of the teacher training programmes, and that researches on the effectiveness of different modes of feedback in improving various aspects of teaching skills in a technical teacher are very few.

Since the development of a Ten-Category Interaction Analysis Category System by Flanders in the 1960s, it has been extensively used in behaviour modification of general teachers either singly or in
combination with microteaching. Moreover, FB through FIACS has been found to be quite effective in modifying general teacher behaviour. But will it be effective in modifying technical teacher behaviour? In the present study, FB through FIACS will be one of the variables whose effectiveness in modifying technical teacher behaviour that will be investigated.

Videotape which was first introduced in 1961 in teacher training has also been extensively used in behaviour modification of general teachers and it has been found to be quite effective. Although FIACS has been used in India in some teacher education programmes, use of VT is very much limited. Moreover, in the field of technical teacher education, there is practically very little research work done either in India or overseas. Will feedback through VT be effective in modifying technical teacher behaviour? In the present study, FB through VT will be a second variable whose effectiveness in modifying technical teacher behaviour that will be investigated.

Analysis of Classroom Transactions (ACTS), another system that can be used to study and analyse teacher behaviour in the classroom has been developed by Roy Harris of the Roehampton Institute of Higher Education under a British Council Teacher Education Project. Although this system tries to identify more specific components in
teacher behaviour and has a good potential for use in teacher training, very little research seems to have been conducted and reported on its effectiveness in modifying teacher behaviour. Moreover, the use of ACTS is completely new to India. But, will feedback through ACTS, be effective in bringing about necessary improvements in technical teacher behaviour? In the present study, FB through ACTS will form another variable whose effectiveness in modifying technical teacher behaviour that will be investigated.

Since three kinds of feedbacks have been chosen to study their effectiveness in behaviour modification, it is also quite relevant to find out the most effective mode of feedback for bringing about necessary improvements in technical teacher behaviour. Hence in the present study, the comparative effectiveness of the different modes of feedback will also be investigated.

The very purpose of modification of technical teacher behaviour is to increase teaching effectiveness in the classroom, and the effectiveness of feedback in bringing about the desired improvements will greatly depend upon the training situation provided. Conventional training (macro-teaching) situations have been severely criticized by both educationists and researchers for its effectiveness, but 'Microteaching' which has been
developed during the 1960s at Stanford University is found to be an effective training situation. Studies on the use of films of model teachers demonstrating desirable teaching techniques in microteaching format and brief videotaped lessons by Orme (1966) have revealed that the skills acquired in microteaching situations will be applicable to classroom situations also and that it can lead to increased effectiveness in terms of class performance. A similar finding that the skills acquired in microteaching can be effectively transferred to the classroom, if properly planned out, was observed by Kallenbach and Gall (1969). The coefficient of correlation between the final microteaching session and the actual classroom situation is quite high. Allen et al. (1969) have obtained a coefficient of 0.68 after six weeks teaching which indicates that microteaching is quite suitable for predicting the actual classroom performance of teachers later (Bush, 1966; Webb and Baird, 1967). Aubortine (1969) has observed that teachers trained through microteaching sessions were perceived to be more effective by their pupils than those trained conventionally. The effectiveness of microteaching in modification of teacher behaviour has also been revealed by Allen (1963), Acheson (1964), Olivero (1964), Allen and Fortune (1965), Allen et al. (1966), Bush (1966), Orme (1966), Allen et al. (1967), Kallenbach (1967),
their ability to conceptualize their own and other teaching behaviours. Singh (1976) has concluded from a large scale field study involving 9 colleges of education that the student teachers trained through microteaching techniques acquire higher general teaching competence compared to those trained under traditional techniques or the usual practice teaching programmes. The value of microteaching in general has been felt by teacher trainees to be high (Webb and Baird, 1967; McIntyre and Duthie, 1972), and that reaction of student teachers towards microteaching has been reported to be positive by Kallenbach (1967), Goodkind (1968), Berliner (1969b), Young and Young (1969), Borg et al. (1970), McCollum and La Due (1970), Ferrot and Duthie (1970), Turney (1970), Ward (1970), McIntyre and Duthie (1972), and Passi and Shah (1972). Research evidences are now available to say that microteaching is an effective technique for development of teaching skills. It is not only effective for pre-service teachers, but also equally effective for in-service teachers. In fact, MacLeod (1975) has observed that microteaching programmes may be more effective with in-service teachers than with pre-service teachers.

From his review of the feedback phase of microteaching, Griffiths (1972) has concluded that though it has received considerable research attention, there are
still very few consistent results. 'Currently we can only guess the conditions under which each source of feedback may, or may not be valuable. As always we need more research'. Singh (1977) has also observed that there is a lot of scope and need for research regarding the comparative effectiveness of different kinds of feedbacks and other variables of microteaching. In the present study, feedbacks will be given in microteaching sessions and their effectiveness investigated on the in-service technical teachers from polytechnics who will form the subjects in the present investigation.