INTRODUCTION

1.1 Teacher Training - Importance

The teacher occupies a key position in any programme of educational reconstruction. He has to organize and skilfully manipulate conditions for learning so that the children under his care may make the maximum use of their potentialities. This is not an easy job. The teaching-learning process is considered to be one of the most delicate, complex, challenging and significant social processes. The major problem in the area of school education is to influence the classroom instructional process. It is only when the instructional process is improved, the benefits of new curricula, new textbooks and innovations may bear fruit. The communication process of the teacher in the classroom has been found to be mainly responsible for the proper educational growth of the child, although, teacher is also expected to direct the pupils in activities outside the classroom in order to enable them to make the changes necessary in their way of thinking and acting. Whatever may be the effort to change the school practices, ultimately it comes down to the teachers' classroom

behaviour, his teaching and the teacher-student interaction.
The interaction between the teacher and the student creates
the climate of freedom or restriction for the pupils in
the classroom. Not much attention has been paid to studying
and analysing the teachers' classroom behaviour. Classroom
in a school, as a unit of interaction amongst pupils, and
between the teacher and pupils, plays an important part in
the development of the child. Since the teacher exerts a
great deal of influence on the pupils, teacher behaviour
as an important variable in the dynamics of the classroom,
has attracted attention of psychologists and educationists.

The teacher has a great deal of influence on
pupils. It has been shown by several studies that a teacher
is a father surrogate, and through the process of interna-
lization of the influence, pupils' behaviour is shaped to
a great extent, by the kind of influence the teacher exerts
(Amidon and Flanders, 1961; Anderson, et al., 1945, 1946;
Filson, 1957; Smith, 1955; Wishpe, 1951). The problem
which confronts those who are concerned with research on
teacher education involves a quest for more dependable
knowledge of teaching behaviour - its elements and their
influence. This is the time for those who are interested in
studying the dynamics of classroom instruction to apply
the knowledge to the training of teachers for the improve-
ment of instruction through modification of their classroom

behaviour.

This task of producing a better teacher has generated a great amount of research. For a long time this research centred on teacher characteristics and their relation to pupil learning outcomes. The results have been contradictory and inconclusive (Gage, 1963). Consequently, the relevance of many teacher training programmes has often been questioned. One of the main criticisms is that student-teachers rarely spend much time in actually studying teaching (Shore, 1972). It is now accepted that the training should emphasize teachers responding to the pupils at the feeling level, encouraging them to express themselves frankly and accepting their ideas. This kind of training is not easy and can certainly be not accomplished through the traditional methods of teacher-training (Pareek and Rao, 1970).

1.2 Traditional Practice Teaching
- Short Comings

The main emphasis in the traditional practice teaching programme is on the skill of communicating subject-matter information to the pupils. This alone will not achieve the objective of bringing about a change in the modification of the teacher behaviour. His basic status needs control and the need of this control seems so great that new methods of training would be necessary to release the teacher from the shackles of these needs (Lynton and

Pareek, 1967; Pareek, 1968). Such training should make
effective use of feedback to bring about change in the
behaviour. Student-teachers do not get the maximum benefit
from their teaching practice because after some theoretical
information and a few demonstration lessons they are sent
to face real classes. Palsane and Ghanchi (1967) surveyed
the practice teaching programme of sixtytwo colleges. They
observed that:

(i)   the number of lessons to be given by a
        trainee is fixed arbitrarily without taking
        into consideration the individual needs and
        abilities;

(ii)   there is a lack of adequate orientation
        programme for initiating practice teaching;

(iii)   the trainees do not get practice in teach-
        ing continuous units and they have no scope
        for developing dynamism, initiative and
        resourcefulness as teachers;

(iv)   the trainees lack opportunities for plann-
        ing through co-operation with pupils,
        teachers and supervisors;

(v)   the training colleges and schools need to
        come closer and co-operate in planning
        programme for student-teachers;

(vi)   there is absence of block teaching and want

of an organized internship experience;

(vii)   the assessment of student-teachers is not

continuous and integrated which could carry

further the seeds of progress; and

(viii) the practice teaching programme needs to

be objectively studied and oriented in all

the aspects. The Education Commission

(1964-66) also expressed its dissatisfaction

in the following words:

> At present, student-teachers are commonly required to give a specified number of isolated lessons, many of which are often unsupervised or ill-supervised. The practice of continuous block-teaching, the duration of which varies from two to six weeks, is adopted only in a few institutions and its organization still leave much to be desired. (p. 74)

At another place the Commission observes:

> The quality of training institutions remains with a few exceptions, either mediocre, or poor, competent staff are not attracted, vitality and realism are lacking in the curriculum and the programme of which continues to largely traditional, and set patterns and rigid techniques ame followed in practice teaching with a disregard to for present day needs and objectives. (pp. 67-68)

Griffiths and Moore (1967) found that student-teachers improve during practice, but there was difficulty

in specifying the improvement. Skills and techniques are
the basic pre-requisites for putting into practice any
teaching method or approach (Bishop and Levy, 1968) to a
subject. Moreover, many of these skills do not seem to be
subject specifics. This implies that these basic skills
could be practised by student-teachers before concentrating
on the more complex matter of method and approach for the
individual subjects. Many of student-teachers do not get
the maximum benefit from their teaching practice because
at the beginning they do not have the basic skills which
could have been acquired outside.

Again, although classroom observation has been
there in our training programmes for a long time now,
efforts to develop objective and reliable scales of
observation are of recent origin. In the traditional
method, observational procedures do not lead to any quanti-
fication and as such reliance has to be placed on the
subjective estimates of observers. Information which is
given to student-teacher is not rich and clear enough to
guide him toward self-directed improvement. This is a
question of feedback. Lack of adequate feedback has plagued
teacher training for centuries (Flanders, 1967). Most
observations are made as abstract generalizations that have
little relation to teacher classroom behaviour. They are
only opinions and stereotype value judgments. There is no
provision to reteach the same unit incorporating the

modifications suggested. Practising schools are not
convinced of the efficacy of practice teaching programme
and are reluctant to allow the student-teachers to practise
therein. Times are changing. Yesterday's firm educational
beliefs are fast becoming popular fallacies of today. When
we concede so much of importance to improvement of teaching
through classroom observation, we can ill-afford any
subjective observational estimate.

The question of how skills of teaching are to be
developed has long confronted the teacher-educator. The
commonsense way of approaching this problem has been to
follow the apprentice pattern used in the teaching of
various arts and crafts. Sometimes this approach to training
has been reduced to short periods of apprentice teaching
under the supervision of teachers whose skills are deemed
to be a little better than those of the persons they are
training. In other cases, the student-teacher in training
has been assigned to a teacher of higher quality. It is
supposed that by observing and studying the performance of
the critic-teacher and by practising under his supervision,
the student-teacher in training would acquire the skill
appropriate for effective class work. But this way of
developing teaching skills has been criticized from several
stand points during the past quarter of the century.
Practice-teaching is now in the process of modification.
The reason is not that the evaluation of the system of

practice teaching or the studies of the effects of practice teaching have conclusively shown it to be ineffective but because more promising modes of teacher training have now become possible.

A major break through in the training of teachers occurred when teaching behaviour was conceived to be a complex of skills that could be identified and practised systematically under specific conditions (MacDonald and Allen, 1967). With the help of the technological devices it could be reproduced also. The teacher in training can now observe and analyze his performance. Side by side there came a new emphasis in the analysis of teaching behaviour. Teaching behaviour no doubt incorporates elements that can be improved, and the improvement can doubtless be effected by studying them in the light of the psychological knowledge.

The question that is raised often is, "How does systematib training in classroom behaviour affect the teachers' effectiveness?" The answer is that there is a possibility that teachers could develop new expectation of themselves and their pupils and more deliberate control of their actions with respect to general parameters of a classroom as a social system. Four techniques - T-group, simulated skill training, interaction analysis and micro-teaching have singly or in some combination provided innovations for pre-service and inservice teacher training programmes. These

techniques emphasize teaching behaviour because it is
conceptualized, performed, and information about the perfor-
mance is made available to the teacher. These innovations
are relatively new and not yet well accepted. But these are
taking place with some evidences to justify the change but
these evidences are tentative and not yet complete. Faced
with incomplete knowledge about how best to help others
change their teaching or how such behaviour might be most
effectively developed, it seems worthwhile to evaluate the
traditional method as well as some innovations, to find out
whether they lead to any change in teaching performance.

1.3 Classroom Interaction Analysis and Practice Teaching

During the last decade some educational researchers
have been trying to develop concepts in terms of which
classroom interaction could be described. Only when it is
possible to describe the teacher classroom behaviour
reliably it is possible to manipulate variables to cause
modifications in the classroom behaviour. If relevant aspect
of a teacher behaviour cannot be modified it makes little
sense to prescribe change in that behaviour (Neujahr, 1972).
Attempts have been made to analyse interaction process in
a classroom. Of seventynine such instruments reviewed in a
study fortyseven were used in teacher training (Simon and
Boyer (eds.),1970). Classes from elementary schools to
colleges have been systematically observed. Researchers have

collected data through observers in classroom, photographs, movies, audio tapes and videotapes. They have used a wide variety of basic units for their analysis. Smith and Meux (1963) attempted to analyse verbal interaction in terms of logical character; Taba's (1964) study is unique in its dependence on developmental psychology, the study of Bellack, et al. (1966) analytical system is based on cognitive view point; Adams (1967) analysed classroom activities in terms of their structural and functional aspects. The work of Paul Gump (1967) represents a different line of classroom research namely ecological research. Anderson (1969) based his system on evolutionary concepts. The observational system which is widely known and used is that of Flanders (1960(b)). The basic assumption of this system is that classroom interaction is a series of events and that teaching behaviour consists of acts or patterns of behaviours, embedded to the chain of classroom events. Flanders used ten category observational instrument to obtain a measure of teacher influence.

The growing interest in classroom interaction analysis in recent years is indicative of the recognition that if there are to be significant improvements in our schools, it will be necessary to find means of modifying and improving teacher behaviour. In both pre-service and inservice education programmes, there is a need to provide teachers with objective information about their teaching,

involving teachers in very indirect way in the study and analysis of the effects of their own teaching behaviour and to provide teachers with opportunities to practise revisions they choose to make in their interaction with pupils. These are possible if classroom interaction analysis techniques are employed in our teacher training programme as tools in training as well as tools with which to measure teacher classroom behaviour patterns.

Interaction analysis (Flanders, 1967) facilitates the observation of teacher-pupil verbal interchange, by using a time sampling technique and coding. Observers are trained in the method before they observe a teacher. After this training, their observations in coded form are analyzed and placed in the form of suggestions, which will aid the observed individual in modifying his behaviour. If the teacher is using patterns of verbal communication that are not consistent with his intentions, he would profit from feedback that reveals their nature. If a training programme seeks to develop specified behaviour in teachers, interaction analysis might assist teachers and others in observing the progress made toward acquisition of desired skills. The observer records a code number one to ten.

No category is necessarily better than any other. It is the patterning and frequency of categories that is important. By sampling about every three seconds, the

observer will have made about four hundred entries in twenty minutes. From these data, matrix may be drawn up, which may provide a number of possible analysis of verbal communication. A second matrix after a teacher has evaluated his efforts may indicate the degree of progress he has made.

Classroom interaction analysis is also useful for training exercises. While certain behaviour patterns are practised, the system could be used by other trainees to observe the practice. It is thus, possible and desirable that all trainees learn interaction analysis and use the technique to pursue individual self improvement goals. The advantages of classroom interaction analysis as against the traditional teacher training method lie in the fact that its utility has been established as a training tool as well as a tool to measure teacher classroom behaviour patterns in the studies of Pareek and Rao (1971), Pangotra (1972), Jangira (1972) and Santhanam (1972). Patterns of teaching behaviour could be systematically drilled into by student-teachers through a series of learning experiences starting with the simple and moving on to more complex. Sharma (1972) studied the relationship between patterns of teacher classroom behaviour and pupils attainment in terms of instructional objectives. The potent role of classroom interaction analysis as a feedback instrument is more

recognised. Pangotra (1972) in his study of student-teachers found some changes in certain pattern of teaching behaviour. Training activities involved, increased sensitivity of teachers to their own behaviour and behaviour of others. Teachers could compare classroom behaviour descriptions provided by classroom interaction analysis matrices as a source of useful feedback for individuals desiring to change their teaching behaviour. Literature in the field gives some support to the assumptions. Hough (1965) reported that ten hours of instructions in classroom interaction analysis significantly increased pre-service teacher ability. Flanders (1965) found that teachers could become indirect in their teaching style by experiencing a workshop in which interaction analysis was taught as a technique for analysing their verbal teaching behaviour. Studies of Hough and Amidon (1964) and Hough and Duncan (1965) also support the view.

The application of classroom interaction analysis in research is valuable. Interaction analysis has much to commend it as an independent or control measure whenever two methods of teaching or two different curricula are being compared. Perhaps the most important research application of interaction analysis would be to study teaching behaviour and classroom interaction in an effort to develop theories of instruction (Flanders, 1970). In a certain classroom setting and with certain learning objectives some

lawful relationship between what the teacher does in class-
room and its effects on the learning of pupils may be found
out. It is quite likely that an effective teacher may adjust
his own behaviour to the learning situation. Interaction
analysis can be used to quantify the degree of flexible
adoptation which is characteristic of teachers' behaviour.
From information of this sort pooled together, theories of
instruction may some day be developed.

1.4 Micro-Teaching and Traditional Practice Teaching

Basically micro-teaching involves the practice of
specific classroom procedures in situations, limited in
size, scope and duration. It is usually closely combined
with relevant theoretical considerations such as the
psychology of learning, and with immediate feedback to
reinforce positive learning by student-teachers. Perhaps
the Education Commission (1964-66) did have in mind the
elements of micro-teaching when they recommend: "...He
may begin his teaching practice with teaching individual
children, then proceed to small groups and eventually
learn to manage full classes having normal strength..."
(p.74).

The Commission was right in suggesting this
procedure to be followed. At present after a few lectures
on theory of teaching and a model lesson by the method

master, the student-teacher is thrown into live classroom situation. While he gradually picks up some idea of how to teach, that happens at the expense of forty to fifty pupils in a class during the period,his prescribed lessons are over. From the start ɴ we expect student-teacher to exhibit or practise all the skills of teaching, classroom inter- action and management. Obviously we expect too much. The results are vague and diffused understanding on the part of student-teachers and a low extent of improvement in their teaching effectiveness. The felt need of raising the effectiveness of practice teaching is realized by all. An intelligent use of classroom interaction analysis provides one method to those concerned with improving teacher preparation. Another method is 'micro-teaching'.

Micro-teaching is a relatively new departure in teacher training. It was first developed at Stanford, California, by Allen and his associates (Allen, 1966). It may be described as a "Scaled down teaching encounter". Scaled down in teaching time, the number of pupils taught and in teaching complexity. One to five pupils are taught lessons for 10 minutes or less. The micro-lesson is video- taped. The student-teacher immediately views his lesson, evaluates it, amends his approach, reteaches the lesson to another group of pupils, views and evaluates it. The micro- teaching cycle is:

Teach - View - Critique - Reteach - Review - Critique.

Each cycle is devoted to one skill only, such as
'teacher liveliness', 'teacher explanation', 'promoting
group discussion' etc. The content of the lesson is select-
ed in order to maximise the use of the skill under review.
The videotape gives the student-teacher direct feedback on
his performance and the cycle gives him the opportunity of
correcting his errors immediately after reviewing them and
then to see his corrected performances.

The rationale underlying micro-teaching is still a
mixture of research and conjecture. But it is possible to
point out two related areas where there are clear advantages.
These are: (i) training in teaching skill, and (ii) its use
as a research tool in teacher-training.

Most of research on micro-teaching is concerned
primarily with its use as a technique. In his experiments
(Allen, 1966,1967) confirmed the hypothesis that perceptual
modelling and videotape demonstration of a skill were more
effective than symbolic modelling or verbal description.
An experiment by McDonald and others (1965) has indicated
reinforcement and discrimination training, during the view-
ing of a videotape, to be more effective than either self-
feedback only or reinforcement only. The evidence of
Kallenbach and Gale (1969) and Allen and Ryans (1969)
demonstrates that micro-teaching with videotape is atleast
as effective as block teaching practice. The experimental
group achieved a level of competence using small groups of

children. Kallenbach reported that one hour micro-teaching
with five pupils is equivalent to five hours teaching with
forty children. Given the equipment, forty children divided
into groups of five can easily give one hour's micro-teaching
to each of 24 students in morning session. This reduces
the pressure on school for teaching practice places and
upon supervisors who frequently spend more time in travell-
ing to school than watching students to teach. Experiments
at Ulster (Brown, 1971) suggest that micro-teaching is
worth considering by a college or department experiencing
difficulties in finding teaching practice places and looking
for ways of improving their training programmes and
measuring their effectiveness. Chudasama (1971) and Marker
(1972) by using micro-teaching in practice teaching programme
as a measure of experiment found the technique useful in
Indian conditions.

Micro-teaching is a safe practice ground for student-
teachers. Classroom management problems can be minimised and
focussed upon separately as a component skill. The use of
videotape enables one to build teaching models into
programme, so that student-teachers could analyse highly
skilled teacher performances, practise their own approaches
and match them with that of the models (Young, 1969). Micro-
teaching can also be applied to teaching in special and
higher education, to training in counselling techniques and
to inservice education (Borg, et al. 1968). Its potential

for improving teacher effectiveness is considerable.

Obviously, the general idea is subject to many
variations. The size of the class is manipulated, the
number of trainees teaching a given group of children can
be increased, the duration of the lesson can be lengthened,
and the nature of the teaching task can be made more complex,
so as to embrace a group of technical skills in an approxi-
mation of their life combinations. But the idea of analyzing
teaching into technical skills remains the heart of the
method and provides its power as a paradigm of research
(Gage, 1972).

Research in classroom behaviour over the past
fifty years has brought us marginally closer to an under-
standing of teacher-learning process (Gage, 1963(a)). Many
of learning principles are derived from studies of human
and infra humans in closely controlled conditions. One
has to rely upon the precision of the stripped down
experimental approach (Bannister, 1966) or to accept that
in classroom conditions, there is little chance of isolat-
ing, controlling and measuring process variables. In the
micro-teaching situation the experimental variables are
under the control, details observation may be recorded and
analyzed and the level of stimulation of normal classroom
teaching may be manipulated. Hypotheses can be tested
experimentally at various levels of classroom complexities.

Other methods of training, such as verbal interaction

analysis (Leonard, 1969; Wragg, 1970) and the use of perce-

ptual and symbolic models (Young, 1969) may be investigated

in conjunction with different kinds of micro-teaching

programmes. It is likely that evaluation techniques may be

developed from micro-teaching programmes based upon an

analysis of component teaching skills and patternsof class-

room interaction.

Not every person can see himself as others see him,

can

and some of those who/are unable or unwilling to modify

their behaviour. Micro-teaching requires the participants to

plan,to teach, to evaluate, and then to repeat the experi-

ences over again, after they have viewed themselves in the

mirror held up by students and the others directing their

training. The micro-technique proceeds on the assumption

that it is a poor practice to try to correct many faults at

a time. Various methods of evaluation may be used, but one

of the most effective methods used is coding technique call-

ed interaction analysis. Micro-teaching is thus useful in

training, in supervision, in recording trainees' progress,

in research and in prediction and selection. Some advantages

are:

> (i) simplification of the complexities of teach-
>   ing,
>
> (ii) greater control over practice,

(iii) increased economy of operation, and

(iv) the opening of new avenues for evaluating

training.

1.5 Interaction Analysis and Micro-Teaching

Both interaction analysis and micro-teaching
present alternatives to the ritual socialization of the
teacher to the classroom that is the usual outcome of
practice teaching and internship (Fuchs, 1969); Joyce,1967).
They are in fact frequently being combined in teacher
education programmes, sometimes with still other approach-
es, such as teacher counselling (Fuller, 1969; Clothier and
Lawson, 1969) and sensitivity training (Joyce, Dirr and
Hunt, 1969), which have not been considered here. All of
these approaches have one thing in common. They aim at
developing a more varied and flexible repertoire of perfor-
mance capabilities in teachers, and classroom roles that
will mutually support and be productive.

Classroom behaviour descriptions provided by inter-
action analysis are a source of useful feedback for indivi-
duals desiring to change their behaviour (Flanders, 1964;
Kurst, 1965; Hough, 1966; Amidon, 1967). Interaction
analysis is also being used as a prescriptive tool in
micro-teaching (Campbell and Minnis, 1970). Programmes
which combine systems of coding verbal communication with

micro-teaching have been implemented at a number of places.
According to Amidon and Rosenshine (1968) a training
programme of this type was carried out at Temple University
in 1961. In 1967 and 1968 programmes were further developed
at Temple by Rosenshine and Furst and at the University of
California at Davis by Minnis. The major advantage reported
by those who conducted the programmes was the greater
specification of the skill to be practised and more objective
information about the performance itself. In moving into the
classroom and to longer periods of teaching, video playback
becomes time consuming and therefore inefficient. Inter-
action analysis is faster and can focus on specific skills
providing the behaviour patterns.

Combining micro-teaching and the category system to
instruct teachers in the use of enquiry has been tried in
several projects (Experienced Teacher Fellowship Programme,
Carngie-Mellon University, 1968-69; Experienced Teacher
Fellowship Program, Mexican-American Project, Sacramento
State College, 1969-70). In these projects, it has been
possible to implement this combination in a teacher educa-
tion programme with encouraging results in improved
instruction in enquiry. Flanders Interaction Analysis
Category System was used by Chudasama (1971) in h£ÿ study
for M.Ed. dissertation in M.S.University, Baroda.

Campbell and Minnis (1970) reported that one

unpublished study found that student-teachers with no
classroom experience can be taught a simple enquiry, teach-
ing pattern with only one hour of instruction and practice.
Subsequent teaching situations demonstrated the subjects'
ability to use the pattern. Those in the control group who
received no instruction and practice did not change their
teaching patterns even though they had knowledge of the
goals of inquiry. These early experiences with the technique
indicate that the combination is feasible and the results
are promising. Continuing study of this approach is necess-
ary to determine the potential contribution/can make to
                                              it
teacher education.

It is not denying the fact that our traditional
practice teaching has impact on teacher training. It has
its own way of feedback although it lacks objectivity and
urgency. It is also true that no thorough review of studies
of the effects of practice teaching on attitudes or on the
skills of teaching has been done which could conclusively
show it to be ineffective. But it needs serious considera-
tion to make an attempt to modify it because more promising
modes of teacher training such as classroom interaction
analysis and micro-teaching have now become possible.

The problem which confronts those who are concern-
ed with the modification of student-teacher behaviour are,
the need of a dependable knowledge of teaching behaviour,

its elements and their influence with the result to have an opportunity to use them in teacher training, practise them and induce institutional changes that incorporate these promising training procedures. It is not an attempt to replace the traditional practice teaching, but a serious endeavour to modify it to bring more objectivity and specificity in shaping the teacher behaviour of student-teachers. Faced with incomplete knowledge about how best to help others change their teaching behaviour which might be most effectively developed with the help of classroom interaction analysis process and micro-teaching under our Indian conditions it would seem prudent to evaluate traditional teaching programme as well as the innovations and try to find out if they lead to any change in teaching performance,