C H A P T E R V

SUMMARY AND CONCLUSIONS

SUMMARY AND CONCLUSION

This chapter is devoted to the summary of the investigation under the following headings :

i) Introduction,
ii) Methods and Procedure,
iii) Results and Discussion,
iv) Conclusions,
v) Educational Implications, and
vi) Suggestions for Further Research.

5.0. INTRODUCTION :

Demands for improvement of the quality of instruction in the schools over the past decades, with the increased need for understanding of the learning process, have led to the provision of training programmes for the teaching personnels of nearly all schools. Along with the rapid growth of knowledge within the subject fields and the need for a close look at course content, pedagogical theories and practices a new challenge for the teacher to improve himself has arisen. This improvement is only possible for the teachers to keep pace with the modern development of instructional strategies and tactics. The teacher should possess a large repertoire of such skills and techniques for achieving beither behavioural pattern within himself and his pupils for effective classroom transaction. Hence, it is necessary for the basic preservice training of the existing teachers to be supplemented by further in-service training.

In the past many teachers ceased formal learning when they qualified as teachers. Moreover, preservice preparation of teachers was rarely ideal and was primarily an introduction to

professional preparation for them rather professional preparation as such. Even today the teacher training programmeshave gone down qualitatively in India and abroad. A number of commissions, teacher educators, researchers and even the teachers badly remarked about the current practices of teachers' training programme. In view of studies of University Education Commission, 1949; Secondary Education Commission, 1953; Education Commission, 1966; James' Committee, 1972; Commission on Teacher Education, U.S.A.; UNESCO Commission, 1972 and 1975; Palsane and Ghanchi, 1967; Flanders, 1967; Marr, et al. 1969; Smith, 1971; Peterson, 1973; Buch and Yadav, 1974 and many others it can safely be concluded that the teachers' training programme proved to be inadequate in meeting the needs of the prospective teachers.

For compensating the teachers already in service, who have suffered badly and are in handicapped position as far as preparatory functions of teaching are concerned, the ways and means must be evolved to update their knowledge on new curricula, pedagogy, methodology along with the instructional strategies and tactics . To eradicate the inadequacies in existing teachers' training programme for qualitative improvement the necessary facilities should be available for the teachers in teaching, teachers in training and the future teachers. The modern skills and techniques are evolving and the teachers should be well aware of those to meet these explosion, to develop and refine their old and obsolete behavioural pattern and to meet the changing needs of societies, the parents and pupils. Hence, to cope with the

qualitative improvement in teaching-learning proces, the characteristics of effective teaching must be focused on micro-criterion approach suggested by Gage(1963). The global approach of teaching and teacher effectiveness have been discarded and analytical approach sustains for developing the specific behavioural components in teacher and his further actions in teaching-learning process. More specifically, the complex activity in teaching is analysed into a number of teaching behaviour for the sake of better understanding in the learning process. In other words, this analytical approach in teaching facilitates a better teaching process, analysing the cluster of teaching acts into a number of encountered skills and tactics in developing the behavioural patterns of the teacher which in turn affect the better pupils' learning and the development of their behavioural patterns. Therefore, the teaching process and the training programme must be reshaped as per the analytical approach to face the challenging needs.

The exponents of analytical approach to teaching and teacher effectiveness have listed a number of teaching skills. Among the exponents, Allen and Ryan (1969); Borg, et al.(1970); The Asian Institute of Teacher Educators (1972); Flanders (1973); Turney, et al.(1973); Brown (1975); Lalithamma (1976) and Perrott (1977) are worth mentioning. The component-skill approach emphasises the acquisition of one skill at a time which can be understand operationally in terms of behaviour, and evaluated and controlled contextually. The teacher can extend his professional

competency on acquiring those teaching skills either refining the old ones or developing the new or untried ones for the best classroom transaction in consistency with the enriched curriculum, and pedagogy of the child. But through what approach these in-service teachers will modify their professional competency ? What are the instructional strategies and tactics ? What are the techniques through which this component-skill approach in teachers' training will be acquired ? These pertinent questions may be solved when various techniques and the instructional skills and strategies will be possessed by the teachers.

Of these, microteaching technique is a most popular, widely used and researched among them. It is a controlled practice technique concentrating on a particular skill for acquisition in developing specific teaching behaviour. This innovative programme is said to be a scaled down teachers' training technique in terms of class size, length of time, unit of content, complementary of task and various complexities. It involves five steps : teach, feedback, replan, reteach, and refeedback.

The effectiveness of microteaching on the development of teaching skills and of general teaching competence was worked out abroad for the professional development of the in-service teachers as well as preservice ones. But, very few studies were undertaken on the in-service setting for the teachers' professional development in Indian context. Even, those studies which were conducted abroad for in-service programme were few, sporadic, and mostly based upon the minicourse format. Hence, testing the

effectiveness of microteaching over integrated skill-based traditional training on the development of general teaching competence was a challenging encounter of this study.

Few studies were conducted on the relative effectiveness of various feedback treatments in in-service teachers' training programme but for preservice programme a large number of studies were completed so far. The purpose of these studies either in preservice or in in-service programme was to find out the effective source of feedback treatment for the acquisition of teaching skills through microteaching. But those studies revealed no consensus in selecting a definite source of feedback treatment. Moreover, not a single study either in preservice or in in-service setting in Indian context was traced out on the relative effectiveness of various feedback treatments like : self-analysis through audiotape feedback, supervisory feedback, supervisory-cum-audiotape feedback. Hence, in the present context this study was undertaken to select a best possible source of effective feedback on acquisition of teaching skills through microteaching. This study was also intended to findout the feasibility of microteaching without the sophisticated costly gadgets.

The review of literatures on acquisition of teaching skills indicated that no uniform criteria was established in selecting the teaching skills for developing the teaching competence; maximising the pupils' learning and more pupil participation; properly evaluating the individual differences; stimulating the whole learning situation; properly illustrating

and explaining and so on. It was also difficult for the teachers to practise all the teaching skills through microteaching technique. Hence, a possible solution to these problems was explored by taking the five teaching skills for acquisition. These following skills were selected considering the importance on academic and psychological benefits for the school teachers and their pupils. These skills were probing questioning, explaining, illustrating with examples, stimulus variation, and reinforcement. Therefore, the effect of acquisitions of these five skills on the ability to use in macrolessons was another aspect of this study.

Further, two sets of measures were undertaken in this study - one, to relate the effects of microteaching and skill acquisition on teachers' attitudes towards teaching, and another, to study the teachers' overall reactions and their perceptions towards microteaching. Some studies on these aspects were reported in India and abroad both in in-service and preservice setting. But, a close examination of these studies revealed a doubtful validity of the results. Some studies were referred, the favourable reactions towards microteaching and thereby significant shifts towards attitudinal changes on teaching were observed. But, some other studies reported unfavourable and mixed observations about the reactions of teachers towards microteaching and their attitudes towards teaching after skill acquisition. Hence, it was thought desirable to conduct a study of two sets of measures on attitudes towards teaching after skill acquisition and reactions towards

microteaching by employing the in-service teachers in India context with an intention to overcome these unstable and dubious values.

5.1. THE PRESENT STUDY :

In the light of the above discussions an experimental project was undertaken. Various feedback treatments on the acquisition of teaching skills through microteaching were compared to the integrated skill-based traditional practice teaching. The in-service teachers of secondary schools were employed in this project for the development of their behavioural patterns and further teaching competence to meet the new challenges in the teaching-learning process.

With the following purposes the study was undertaken. The effectiveness of microteaching on the development of general teaching competence was investigated. The relative effectiveness of various feedback treatments on the acquisition of teaching skills upon the general teaching competence was studied. The effect of acquisition of five teaching skills (Probing questioning, explaining, illustrating with examples, stimulus variation and reinforcement) on the ability to use them in macro-situation was observed through the summated scores on the five skills. The effect of skill acquisition on the teachers' attitudes towards teaching and towards microteaching was also investigated. Further this study was also culminated to investigate the effectiveness of microteaching without the sophisticated gadgets in the in-service training programme.

5.1.1. Statement of the Problem :

The problem for this study was stated as, "Effect of Various Treatments on the Acquisition of Teaching Skills through Microteaching".

This problem was stated more specifically in terms of objectives, hypotheses, and delimitations of the study.

5.1.2. Objectives :

The followings were the objectives of the study :

1) to study the effectiveness of microteaching under various feedback treatments compared to integrated skill-based traditional practice teaching on the development of general teaching competence.

2) to study the relative effectiveness of various feedback treatments (self-analysis through audiotape, supervisory feedback, and supervisory-cum-audiotape) in microteaching situations on the development of general teaching competence.

3) to study the effect of training through microteaching in specific teaching skills on the ability to use these skills in macrolessons.

4) to study the change in teachers' attitudes towards teaching after acquisition of teaching skills through microteaching.

5.1.3. Hypotheses :

In order to fulfil the objectives, the following hypotheses were formulated :

H_1 - The gain in scores on General Teaching Competence at the post test over the pretest and of the retention test over the pre/post test is significantly higher for the microteaching group using any of the three feedback treatments (self-analysis through audiotape, supervisory feedback and supervisory-cum-audiotape) than the filler group under integrated skill-based traditional supervision.

H_2 - The gain in scores on General Teaching Competence at the post test over the pretest and of the retention test over pre/post test is significantly higher for the microteaching group having supervisory-cum-audiotape feedback than the microteaching group either of self-analysis through audiotape or of supervisory feedback.

H_3 - The gain in scores on General Teaching Competence at the post test over the pretest and of the retention test over pre/post test is significantly higher for the microteaching group having supervisory feedback than the group using self-analysis through audiotape.

H_4 - The gain in summated scores on the five specific teaching skills of the General Teaching Competence at the post test over pretest and of the retention test over pre/post test is significantly higher for the microteaching group using any of the three different feedback treatments than the 'filler' group under integrated skill-based traditional supervision.

H_5 - There is no significant differences in gain in summated scores on the five specific teaching skills of the General Teaching Competence at the post test/retention test over pre/post test in case of three microteaching groups.

H_6 - The gain in scores on Teachers' Attitudes towards Teaching at the post test overpretest is significantly higher in case of microteaching group using any of the three feedback treatments (self-analysis through audiotape, supervisory feedback, supervisory-cum-audiotape feedback) than the 'filler' group under integrated skill-based traditional supervision.

H_7 - There is no significant differences in gain in scores on Teachers' Attitudes towards Teaching at the post test over pretest in three microteaching groups using self-analysis through audiotape, supervisory feedback and supervisory-cum-audiotape feedback.

In stating the hypotheses H_1, H_2, H_3, H_4, and H_5 the gain scores of (i) post test over pretest, (ii) retention test over pretest, and (iii) retention test over post test were combined under the statement of each hypothesis; but the analysis of the results and their interpretations, discussions, and conclusions were made according to each gainx scores separately of a particular hypothesis.

5.1.4. <u>The Key-terms Used</u> :

In the title, objectives, and hypotheses of the study, various key terms were used. This problem can be specified more clearly if the meaning and the context of these items are provided.

(a) Various Treatments : These treatments were specifically under the feedback treatments (self-analysis through audiotape feedback, supervisory feedback and supervisory-cum-audiotape feedback) during microteaching.

(b) Teaching skills : These were a set of related teaching behaviours. In achieving the competency in teaching and refining the behavioural pattern the five teaching skills:-probing questioning, explaining, illustrating with examples, stimulus variation, and reinforcement were selected for acquisition.

(c) Experimental Group : This represents the teachers those who were exposed to the treatments of instructional materials for the selected teaching skills under microteaching technique with varying sources of feedback treatments. Three experimental groups were undertaken in microteaching setting in real conditions - 'E_1' (Self-analysis through audiotape feedback), 'E_2' (Supervisory feedback), and 'E_3' (Supervisory-cum-audiotape feedback).

(d) 'Filler' Group : This group represented a control group with 'filler' task to avoid the Hawthorne effect. A considerable parallel treatment was adopted to this 'filler' group 'F' with that of three experimental groups. The equal treatments on orientation, and modelling both in pre-perceptual and symbolic were given to this group prior to practice of teaching skills. Instead of microteaching practice the teachers in the 'filler' group acquired the five teaching skills in an integrared approach through traditional practice teaching. They were fedback through traditional supervision but emphasising the development of teaching competence on those five skills in an integrated way. After practice phase, the equivalent treatments were also given to this group. Hence, the treatment in the 'filler' group was integrated skill-based traditional practice teaching.

(e) Macrolesson : A lesson which was taught by the teacher in an enlarged situation in normal classroom setting having nearly forty pupils with usual time period of forty minutes on a subject content considering necessary teaching skills in an integrated manner confronting a number of classroom complexities.

(f) General Teaching Competence (GTC) : This was the overall competence of the teacher on planning the lesson, presenting the subject content, closing, evaluation, and managerial aspects of the teacher in normal classroom teaching. This general teaching competence was measured through the Baroda General Teaching Competence (BGTC) schedule which was consisted of twenty one teaching skills on the above aspects. (For Scale, See Appendix-A).

(g) Summated Scores on the Five Skills : This was the total scores on the specific five teaching skills of probing questioning, explaining, illustrating with examples, stimulus variation and reinforcement of the general teaching competence. This summated scores on the five skills were measured through the BGTC Schedule - considering the specific items only corresponding to the five teaching skills.

(h) Attitude towards Teaching : It was represented by the scores obtained during the administration of the Ahluwalia's Teacher Attitude Inventory (ATAI).(For scale, see Appendix-B).

(i) Reactions towards Microteaching : The teachers' overall reactions and their perceptions towards microteaching, skill acquisition, integration of teaching skills etc. were represented by the data obtained during administration of the 'Self-Evaluation Proforma'. (For scale, see Appendix-C).

5.1.5. Delimitation of the Study :

This study was confined to the secondary school teachers (in-service teachers) drawn from two educational districts of Orissa. The sample was limited to thirty three teachers from nine secondary schools.

The study was conducted as an in-campus programme. It was executed in actual school conditions.

Only four of feedback treatments - self-analysis through audiotape feedback, supervisory feedback, supervisory-cum-audiotape feedback under microteaching technique and another traditional supervisory practices emphasising teaching skills on an integrated approach under traditional training were undertaken.

The study was further restricted to a few selected teaching skills of probing questioning, explaining, illustrating with examples, stimulus variation , and reinforcement. The efforts to develop these skills among the in-service teachers were restricted to microteaching setting in real classroom conditions.

The investigator acted simultaneously as the organiser and coordinating the programme in schools; as the observer with another personnel in assessing the general teaching competence of the teachers during pretest, post-test, and retention test in

macrolessons; as a resource personnel during modelling, giving model microlessons on each teaching skill and demonstrating the macrolessons integrating all the skills including these five; and as supervisor during feedback treatments particularly to the teachers under the groups of 'E_2', 'E_3' in microteaching and 'F' in traditional training with integrated micro-skill approach.

5.2. METHOD AND PROCEDURES :

In order to study the hypotheses an experimental pretest-post test parallel group design was undertaken. Three groups 'E_1', self-analysis through audiotape; 'E_2', supervisory feedback; 'E_3', supervisory-cum-audiotape feedback, as experimental groups in microteaching, whereas a fourth one as 'filler' group 'F' with integrated skill-based traditional practice teaching were taken into this experimental design.

5.2.1. Variables in Experimental Approach :

This experiment involved the evaluation of some new and untried elements. Various feedback treatments during acquisition of teaching skills : self analysis through audiotape, supervisory feedback and supervisory-cum-audiotape feedback in microteaching and skill-based traditional supervision in integrated approach of skill training under traditional practice teaching; acquisition of five teaching skills through microteaching and through traditional training were the independent variables. The dependent variables were the development of general teaching competence measured through the BGTC; summated scores on teaching c

competence specific to the five teaching skills, a part of the BGTC; effect on teachers' attitudes towards teaching measured through the ATAI; and reactions towards microteaching on teachers's report 'Self-Evaluation Proforma'.

5.2.2. Sample :

In this experimental research project, it was not possible to bring all the respondents relevant to the study into the experimentation. Moreover it was not possible to call all the subjects (in-service school teachers) to assemble in an off-campus study. Therefore, some parameters in selecting the subjects were considered. Those parameters were: secondary school teachers from Cuttack and Puri Educational Districts of Orissa; the schools having at least male four trained graduate/post graduate teachers to adopt all the four feedback treatments simultaneously; schools under private management only for homogeneity of the sample; and such schools easily accessible, and availability of necessary cooperation for conducting the project.

With this broad frame of parameters nine schools having thirty three secondary school teachers out of thirty four schools invited for this experimentation were finally selected for data producing sample. The experimental and 'filler' groups were matched on the variables of their ages, teaching experiences, qualifications and major subjects taught in higher classes. After proper adjusting the teachers from one group to another in order to obtain a closer match of mean and standard deviation in age and experience, four groups of 'E_1' (n=9), 'E_2' (n=9), 'E_3' (n=6)

and 'F' (n=9) ranging from 24 to 37 years of age; teaching experience from 3 to 14 years; certain teaching subjects; and twenty six trained graduate and seven trained post-graduate teachers both from arts and science subjects were retained finally.

5.2.3. Tools Used :

For measuring the general teaching competence and the summated scores on the five teaching skills during pretest, post test, and retention test, the Baroda General Teaching Competence (BGTC) Schedule; for assessing the change in attitude towards teaching from pretest to post test, the Teachers' Attitude Inventory (ATAI) developed by Ahluwalia[8]; and for investigating the reactions of the teachers towards microteaching, the Self-Evaluation Proforma developed by the investigator himself were used as the tools during the experimental projects. During the feedback sessions in micro-teaching technique the Observation Schedules, one in frequency type and another in rating type in each skill, were used by the teachers under practice in three experimental groups. The brief descriptions of these tools along with their purposes are described in the Table 2.5.

5.2.4. Treatments :

As per the schematic design of the study in the Figure 5.1 the experimentation was carried out on a six-phased programme in a particular school taking four teachers with varying sources of feedback treatments. Nearly thirty to forty days were devoted in each school for the completion of this study.

FIGURE : 5.1 : Schematic Representation of Design.

PHASE - I (Pretest)	1) Three Macrolessons were observed and evaluated through the BGTC Schedule in each 'E1', 'E2', 'E3' and 'F' Group.			
	2) The ATAI was administered to teachers of all the groups 'E1', 'E2', 'E3' and 'F'.			
PHASE - II (Modelling)	Five Skills explained, Literatures of each skill supplied, and Demonstration lesson in microsituation was given on each skill to 'E1', 'E2', 'E3' and 'F' groups.			
PHASE-III (Practices of Teaching Skills).	E_1(n=9) Self-Analysis through audiotape feedback	E_2(n=9) 'Supervisory Feedback.	E_3(n=6) 'Supervisory-cum-audiotape feedback.	F (n=9) 'Filler' group 'with skill-based traditional Supervision.
	Skill Training through Microteaching.	Skill Training through Microteaching.	Skill Training through Microteaching.	Skill Training through Macroteaching.
	Skill-1(2 Lesson)	Skill-1(2 Lessons)	Skill-1(2 Lessons)	10 Lessons were supervised in traditional pattern emphasising teaching skills in an integrated approach.
	Skill-2(")	Skill-2(")	Skill-2(")	
	Skill-3(")	Skill-3(")	Skill-3(")	
	Skill-4(")	Skill-4(")	Skill-4(")	
	Skill-5(")	Skill-5(")	Skill-5(")	
	5x2=10 Lessons.	(5x2)=10 Lessons.	(5x2)=10 lessons.	
	Total 10x9=90 Microlessons	10x9=90 Microlessons	10x6=60 Microlessons	10x9=90 Macrolessons.

(The teaching practice of each of the teachers in the groups in each school was equal).

PHASE-V (Post test)	1)	Five Macrolessons were observed and evaluated through the BGTC in each 'E_1','E_2', 'E_3' and 'F' group.
	2)	The ATAI was administered to teachers of all the groups.
	3)	The self-Evaluation Proforma was administered to teachers of each of the 'E_1', 'E_2' and 'E_3' groups.

PHASE-VI (Retention test)	Three Macrolessons were observed and evaluated through the BGTC in each 'E_1', 'E_2', 'E_3' and 'F' group after one month of post testing, (i.e. after Phase V).

The study was conducted in a school after a general orientation to the participating teachers on microteaching, the need of in-service training, the development of teacher behaviour and teaching competency.

After planning the project of implementation the pretest phase was taken up as per the design. By a team of observers (the investigator himself and a retired headmaster who was well known about the teaching skills, the BGTC Schedule and the techniques of measurement acted as observers through out the experiments in all the nine schools) three macrolessons of each teacher were observed and evaluated through the BGTC Schedule. The ATAI was also administered to each teacher in each group during this phase of the design.

Both the symbolic and perceptual modelling on the five teaching skills were exposed to all the teachers of four groups. The investigator demonstrated microlessons in each skill. The literature on each skill was thoroughly discussed considering the specific examples from their class situations. The microlesson plans on each skill of the teachers in 'E_1', 'E_2', and 'E_3' group and plans on macrolesson integrating five teaching skills of the teacher in 'F' group were corrected and suggested for further improvement.

Each teacher under varying sources of feedback in 'E_1', 'E_2', and 'E_3' groups practised the five skills one by one taking two cycles in each skill (one cycle is equivalent to 'teach, feedback, replan, reteach, and refeedback'), whereas the teacher in 'filler' group (F) practised an equivalent ten macrolessons in an integrated approach of skill training. The supervisor gave the feedback to the teacher of the 'filler' group emphasising the development of teaching competence through acquisition of teaching skills after each macrolesson. The teacher in 'E_1' group reviewed his 'teaching' and 'reteaching' through his self-assessed observation schedules with the assistance of tape recorder during 'feedback' and 'refeedback' sessions. Biases were minimised as far as practicable and equal importance was given to all the teachers in each group.

After this practice phase, discussions on techniques of integrating these five teaching skills and demonstrations in macrolessons were undertaken.

Five lessons of each teacher in each group were observed and evaluated through the BGTC Schedule by the same team of observers during post test phase. The ATAI was administered to each teacher. The reactions on microteaching were collected through the 'Self-Evaluation Proforma' from the participating teachers in 'E_1', 'E_2', and 'E_3' groups.

After completion of post test phase the same team proceeded to another school to begin the experiment as per the schematic design. Just after one month of the post test of the first school the team returned back to this first school again for retention test. Three macrolessons of each teacher in all four groups were observed and evaluated through the BGTC Schedule by the same team of observers. Then the team proceeded to the third school as per the design of experimentation in schools (vide Figure 2.2) for implementating the programme. Like this, the whole experimental programme in all the nine schools were completed.

The collected data were compiled, the gain in scores at the post test/retention test over pretest/post test of general teaching competence (G_1, G_2, and G_3) measured through the BGTC Schedule; the gain in summated scores on only the five skills under consideration measured through the BGTC Schedule at the post test/retention test over pretest/post test (S_1, S_2, and S_3); the gain in scores on teachers' attitudes towards teaching measured through the ATAI from pretest to post test (G_4) were calculated with their means and standard deviations.

5.3. RESULTS AND DISCUSSIONS :

At the outset of the analysis and the hypotheses testing, the homogeneity of population variances within the four groups 'E_1', 'E_2', 'E_3' and 'F' having varying sources of feedback was tested through the Hartley's computational procedure and found the tenability of homogeneity among the groups.

The data related to the gain scores of G_1, G_2, and G_3 of general teaching competence; gain in summated scores of S_1, S_2, and S_3 on the five teaching skills under consideration; and gain scores of G_4 on attitudes towards teaching were subjected to analysis through the parametric and non-parametric statistical measures as per the hypotheses. One-factor ANOVA for testing the significant mean differences among the groups simultaneously, Scheffe' method for multiple comparison among the contrasting groups establishing their confidence intervals, and Wilcoxon matched-pairs signed-ranks test for testing the significant score differences among the matched teachers, were adopted in testing each of the hypotheses.

5.3.1. Schematic Representation of the Project :

The Figure 5.2 is represented a schema of the whole project where the objectives, hypotheses, statistical technique employed, and the findings of the study are illustrated.

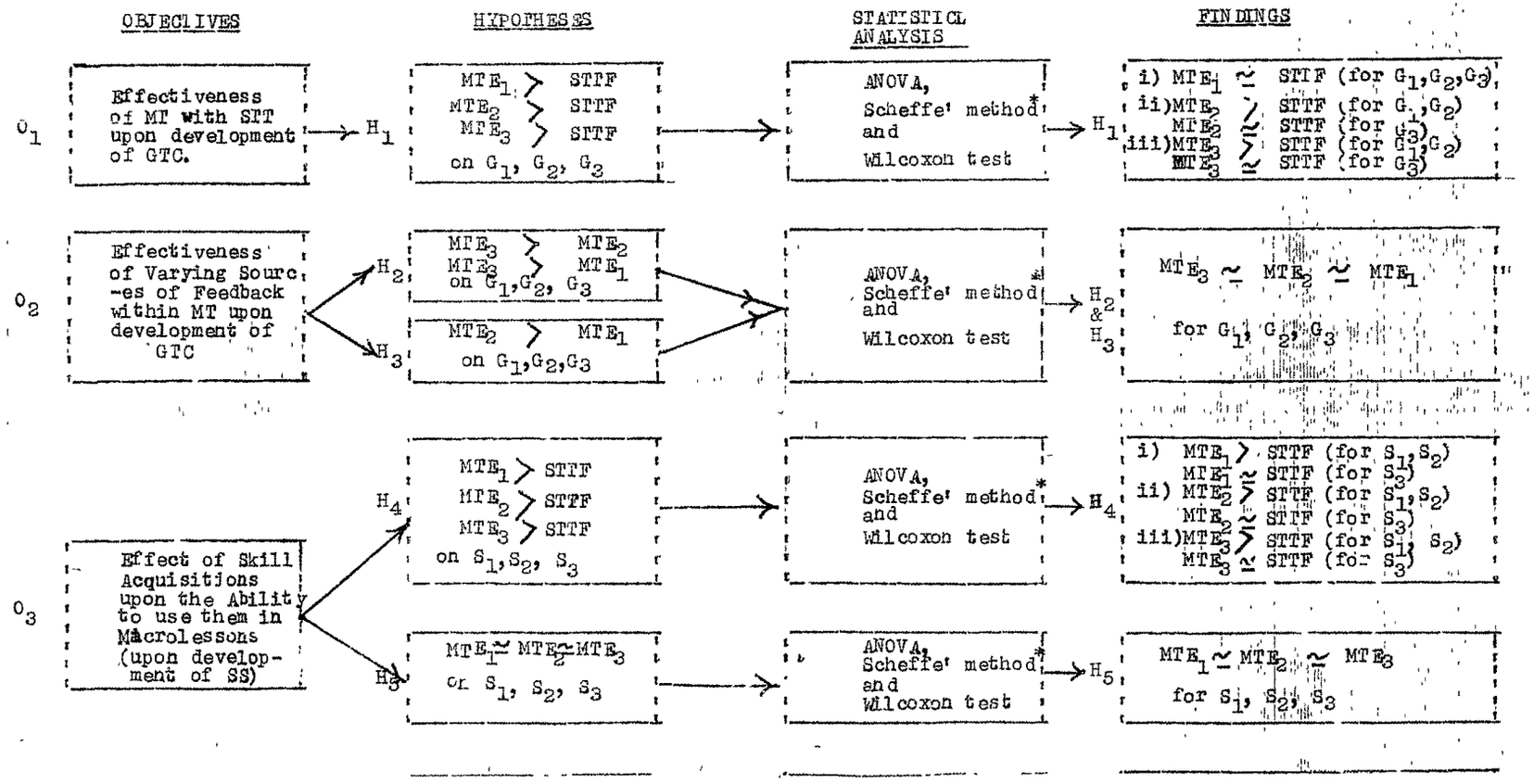
5.3.2. Effectiveness of Microteaching :

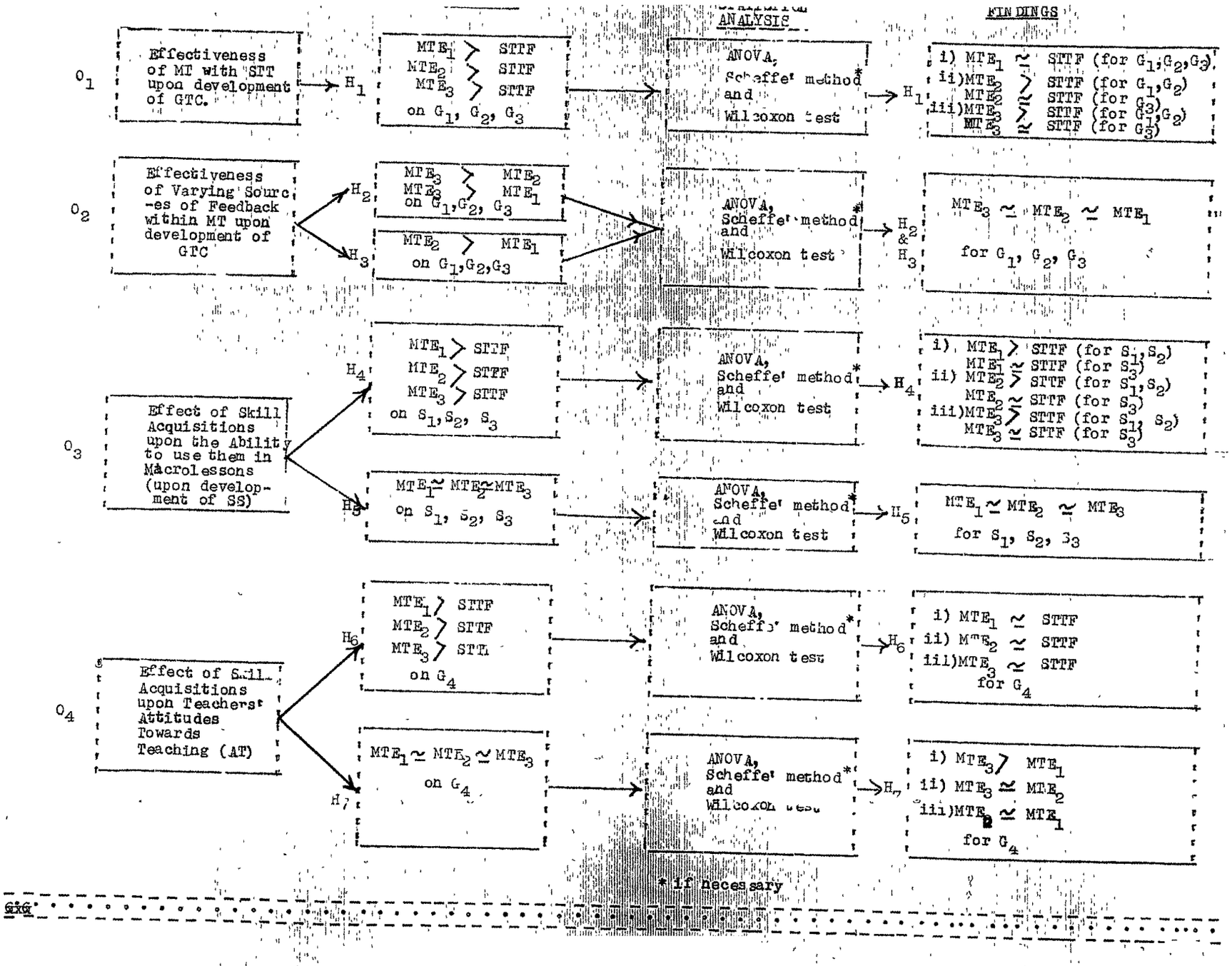
The effectiveness of microteaching on the development of general teaching competence was retained over that of 'filler'

FIGURE : 5.2 : A SCHEMATIC REPRESENTATION OF THE PROJECT

Illustrated Abbreviations :

Microteaching	MT
Integrated Skill-based Traditional Practice Teaching	SIT
General Teaching Competence	GTC
Pretest GTC	T_1
Post test GTC	T_2
Retention Test GTC	T_3
Summated scores on the Five Skills	SS
Pretest SS	t_1
Post test SS	t_2
Retention test SS	t_3
Attitudes towards Teaching	AT
Pretest AT	AT_1
Post test AT	AT_2
Gain Scores :	
G_1	T_2-T_1
G_2	T_3-T_1
G_3	T_3-T_2
S_1	t_2-t_1
S_2	t_3-t_1
Gain Scores(Cont'd.) :	
S_3	t_3-t_2
G_4	AT_2-AT_1
Treatments :	
Experimental Group of MT under self-analysis through Audiotape	MTE_1
Experimental Group of MT under supervisory feedback	MTE_2
Experimental Group of MT under supervisory-cum-audiotape	MTE_3
'Filler' Group of SIT under skill-based traditional supervision	STTF




ANALYSIS
FINDINGS
O_1
Effectiveness of MT with SIT upon development of GTC.
H_1
$MTE_1 > STTF$
$MTE_2 > STTF$
$MTE_3 > STTF$
on G_1, G_2, G_3
ANOVA, Scheffe' method and Wilcoxon test
H_1
i) $MTE_1 \simeq STTF$ (for G_1, G_2, G_3)
ii) $MTE_2 \gtrsim STTF$ (for G_1, G_2)
$MTE_2 \simeq STTF$ (for G_3)
iii) $MTE_3 \gtrsim STTF$ (for G_1, G_2)
$MTE_3 \simeq STTF$ (for G_3)
O_2
Effectiveness of Varying Sources of Feedback within MT upon development of GTC
H_2
$MTE_3 > MTE_2$
$MTE_3 > MTE_1$
on G_1, G_2, G_3
H_3
$MTE_2 > MTE_1$
on G_1, G_2, G_3
ANOVA, Scheffe' method and Wilcoxon test
H_2 & H_3
$MTE_3 \simeq MTE_2 \simeq MTE_1$
for G_1, G_2, G_3
O_3
Effect of Skill Acquisitions upon the Ability to use them in Macrolessons (upon development of SS)
H_4
$MTE_1 > STTF$
$MTE_2 > STTF$
$MTE_3 > STTF$
on S_1, S_2, S_3
ANOVA, Scheffe' method and Wilcoxon test
H_4
i) $MTE_1 > STTF$ (for S_1, S_2)
$MTE_1 \gtrsim STTF$ (for S_3)
ii) $MTE_2 > STTF$ (for S_1, S_2)
$MTE_2 \gtrsim STTF$ (for S_3)
iii) $MTE_3 > STTF$ (for S_1, S_2)
$MTE_3 \simeq STTF$ (for S_3)
H_5
$MTE_1 \simeq MTE_2 \simeq MTE_3$
on S_1, S_2, S_3
ANOVA, Scheffe' method and Wilcoxon test
H_5
$MTE_1 \simeq MTE_2 \simeq MTE_3$
for S_1, S_2, S_3
O_4
Effect of Skill Acquisitions upon Teachers' Attitudes Towards Teaching (AT)
H_6
$MTE_1 > STTF$
$MTE_2 > STTF$
$MTE_3 > STTF$
on G_4
ANOVA, Scheffe' method and Wilcoxon test
H_6
i) $MTE_1 \simeq STTF$
ii) $MTE_2 \simeq STTF$
iii) $MTE_3 \simeq STTF$
for G_4
H_7
$MTE_1 \simeq MTE_2 \simeq MTE_3$
on G_4
ANOVA, Scheffe' method and Wilcoxon test
H_7
i) $MTE_3 > MTE_1$
ii) $MTE_3 \simeq MTE_2$
iii) $MTE_2 \simeq MTE_1$
for G_4
* if necessary

group having integrated skill-based traditional practice teaching for G_1 gain scores and for G_2 gain scores, whereas no significant differences were sustained for G_3 gain scores. But after multiple comparisons among contrasting groups the results indicated that the treatments under self-analysis through audiotape feedback in microteaching were equally effective to that of the 'filler' group on the development of general teaching competence for G_1, G_2 and G_3 gain scores. The teachers in microteaching under supervisory with or without audiotape feedback were significantly higher in achieving the gain or GTC scores than that of 'filler' group for both G_1 and G_2 scores, whereas no significant difference was sustained among all the treatments for G_3 gain scores.

Considering the teaching competence in each group before and after the skill-based microteaching or skill-based traditional training the tenability of the significant differences on the development of general teaching competence were reported. But after a month of post test i.e. at the retention test, the scores on G_{TC} of each teacher in all the groups did not differ significantly with that of the post test measures.

From these observations it revealed that the teachers in microteaching technique were significantly higher in achieveing the gain in GTC scores at the post test/retention test over pretest to that of integrated skill-based traditional practice. The possibilities might be that during practice, the analytical approach of skill training through microteaching, the microgskill based feedback on a particular skill under supervisor with or

without audiotape, repeated practice through 'teach-reteach' cycle with a scope of getting the assement of practice teaching at each stage, the miniaturised situation and minimised complexities were the affecting determinants on the microteachers for their significant development of competence in teaching skills. The integration of these acquired skills might be easier for them to transfer this learning effectively to macro-situation.

Though the teachers in the 'filler' group were modelled those skills analytically, but during practice they were in integrated approach of skill training under traditional practice. The synthetical approach was dominating through out the planning of macrolesson, practice and supervision. In addition to other complexities they were in dual role in modifying their own behaviour along with the pupils' learning during practice. The supervision, even if it was skill-based, might be lacking in providing feedback analytically on each skill and it's components without the help of observation schedules. The effect of transfer of learning to macro-situation, therefore, might have gone down compared to the teachers in microteaching treatments.

Before testing the hypothesis a test of correlated measures of the same individual teacher in each group at different situations (pretest, post test and retention test) were adopted to view the impact of skill acquisition either through microteaching or through integrated skill-based traditional training (in 'filler' group) on the development of GTC scores. The results were

highly favourable from initial measures to final measures. The reasons particularly for 'filler' group might be the analytical approach in modelling the teaching skills, both in perceptual and symbolic; integrated approach of skill training; skill-based supervision; a sense of skill development and behaviour modification of those teachers during practice through macrolessons. These activities were purely different from the usual traditional practice teaching.

The teachers who were under self-analysis through audiptape group might be in difficulty in assessing their non-verbal aspects through audiotape during microteaching. They might have biased on the ower confidence in teaching competency and conditioned to the traditional pattern. The effect of non-specific sixteen skills of the BGTC Schedule other than the specific five under consideration might be affecting in minimising their (the teachers under self-analysis group) GTC Scores.

After a month of post test measures, probably the teachers in each group might have reached the performance plateau in their behavioural patterns possessing all the repertoire of strategies and skills of teaching competence. It might be the reason in gaining the consistent scores on the general teaching competence at post test and retention test.

5.3.3. Varying Sources of Feedback :

The tenability of hypotheses H_2 and H_3 for the gain scores G_1, G_2 and G_3 on the development of general teaching competence were rejected. The teachers under self-analysis through audiotape feedback, supervisory feedback, and supervisory-cum-

cum-audiotape feedback within microteaching technique did not differ significantly among themselves on the development of general teaching competence at the post test/retention test over the pøretest/post test. This fevealed that the treatments in microteaching was equally effective for the acquisition of teaching skills and subsequent development of general teaching competence under varying sources of feedback.

At the modelling and lesson-planning phase of experimentation, the teachers in three microteaching treatments were equally treated. But during practice stage the teachers under the treatment in 'E_3' group were provided two sources of feedback simultaneously having supervisory and using of audiotape, whereas the other two groups 'E_1' and 'E_2' were in self-feedback using only audiotape, and supervisory feedback respectively.

Though it was expected that the teachers in 'E_3' group may be shining more because of two sources of feedback simultaneously but they did not achieve any significant differential gain. Probably, either one among the two sources might be ineffective or dormant during this stage in providing feedback. The importance of supervisory feedback with observation schedules might have felt by the teachers in 'F_3' group rather, in self-sensing and analysing themselves through tape recorder. Another possibility might be the duration of 'feedback' session. Equivalent time periods of eight minutes only were given to these teachers having the provision of supervisor and audiotape as that of other two treatments. Perhaps they find less time in analysing themselves on the components and sub-componets of teaching skills. To this

respect the reactions of the teachers on their self-evaluation proformas may be looked into.

The teachers in self-analysis through audiotape feedback probably developed the self-consciousness during practice of teaching skills alone without any assistance of supervisor. The verbal behavioural patterns were fedback and analysed through the audiotape. As the feedback was immediate, just after 'teach' and 'reteach' sessions, the teachers themselves might introspect their non-verbal patterns with the help of their observation schedules. As regards to the teachers under supervisory feedback, both the verbal and non-verbal patterns of behaviour were fedback by the supervisor with the help of observation schedules. Hence, finally it was concluded that the various sources of practice effect in microteaching did not reflect any differential impact to the teachers on the development of general teaching competence.

5.3.4. Acquisition of Five Teaching Skills :

The hypothesis H_4, relating to the effectiveness of microteaching under varying sources of feedback on the gain in summated scores on the five teaching skills compared to that of 'filler' group was retained for S_1 and S_2 gain scores, whereas it was rejected for S_3 gain scores. The tenability of null hypothesis, H_5 relating to the effectiveness of varying sources of feedback treatments within microteaching on the gain in summated scores on the five teaching skills was accepted for S_1, S_2, and S_3 gain scores.

The summated scores on the five skills under consideration were the portions of the total scores on GTC, measured through the sameBGTC Schedule in which twenty one items corresponding to the twenty one teaching skills were agglomerated. The discussions were made in the light of total GTC scores on the results of Hypotheses, H_1, H_2 and H_3. In addition to these discussions, the practice effect of the five skills and the absence of non-specific sixteen skills on the results of the hypotheses H_4 and H_5 may be referred here in this present context.

The whole of the experiment was the same and the tool for measuring the GTC scores for H_1, H_2 and H_3; and the summated scores on the five skills (a part of GTC scores) for H_4 and H_5 was also the same. The only differences ~~was~~ are the non-specific sixteen teaching skills in addition to the five were taken into consieration during the testing of hypotheses H_1, H_2,and H_3. The results, therefore, was that the treatment in self-analysis through audiotape feedback in microteaching on the development of GTC was equally effective when compared on the gain scores to that of 'filler' group. But, taking the summated scores into consideration during the testing of hypothesis H_4, the results revealed that in addition to the other sources of feedback, the treatment in self-analysis through audiotape feedback was highly effective on the development of gain in summated scores to that of 'filler' group. Hence, the total GTC scores might have influenced by the practice effect of the five skills as well as the transfer effect on the sixteen non-specific skills. It was further concluded that the effects of these sixteen skills might have given some differential

impact on the results of the above hypotheses particularly H_1 and H_4. The other discussions on the results of hypotheses H_4 and H_5 were the same as that of H_1, H_2 and H_3 but related to the summated scores on the five skills.

5.3.5. Teachers' Attitudes towards Teaching :

The two hypotheses H_6 and H_7 pertaining to the effect of skill acquisitions on the teachers' attitudes towards teaching were rejected and the following results were sustained. The treatments in microteaching groups under varying sources of feedback were equally effective on the gain scores of attitudes towards teaching at the post test over pretest with that of the 'Filler' group. But after multiple comparison the results further indicated that the teachers trained through microteaching under supervisory-cum-audiotape feedback gained the attitudes towards teaching signifcantly more at the post test over pretest than that of the teachers under self-analysis through audiotape feedback. The treatments in other contrasting microteaching groups under varying sources of feedback were equally effective among themselves on the gain scores of attitudes towards teaching at the post test over pretest.

The participating teachers trained either through microteaching or through integrated skill-based traditional practice teaching (in 'filler' group) were experienced in their teaching professions. Prior to this skill training they might have developed the consistent patterns on the attitudes towards teaching and to

the teaching profession. Moreover, this short term course practice on teaching skills did not affect them significantly in changing their attitudes. Hence, the acquisition of teaching skills did not reflect any differential impact on the teachers' attitudes towards teaching.

The teachers trained through microteaching under supervisory-cum-audiotape feedback got the maximum benefit in changing their behavioural patterns in using audiotape in addition to supervisory feedback. Perhaps they might have favourably attached with a respect to the supervisor and his suggestions for improvement in addition to their self-consciousness in developing their behavioural patterns viewing from audiotape. Hence, the differential change in teachers' attitudes towards teaching was significantly observed after skill acqisition through microteaching under supervisory-cum-audiotape feedback over that of the teachers under self-analysis through audiotape feedback.

5.3.6. Teachers' Reactions Towards Microteaching :

After content analysis on the teachers' reactions towards microteaching from the 'Self-Evaluation Proforma' the results revealed that almost all the teachers reacted favourably towards microteaching, acquisition of teaching skills using supervisory with or without audiotape feedback, and effective integration of teaching skills for macrolessons. But the teachers those who were in the self-analysis group were too much dissatisfied about the provision of self-analysis through audiotape feedback.

The course as a whole was favourably received by the teachers. All of the skills were considered useful in their work with small groups, individual pupils, and the class as a whole. Thus, the microteaching course provided the teachers with a different instructional model from those with which they were previously familiar on traditional practices. More acceptance of group work, more pupil participation and less emphasis on formal teaching were all detectable in their responses.

5.4. CONCLUSIONS :

On the basis of the results and discussions related to effectiveness of microteaching, and effect of various feedback treatments for the acquisition of teaching skills on the development of general teaching competence; summated scores on the five teaching skills; effect of skill acquisition under various feedback treatments on the teachers' attitudes towards teaching; and teachers' reactions towards microteaching the following conclusions were drawn.

Conclusions Related to Effectiveness of Microteaching :

The conclusions were related to the first objective and it's formulated first hypothesis in the context of the effectiveness of microteaching over integrated approach of skill-based traditional practice teaching on the development of general teaching competence.

(a) Effectiveness of Microteaching over the 'Filler' group under the integrated skill-based traditional practice teaching :

The in-service school teachers in the micro-teaching groups for the acquisition of teaching-skills exhibited significantly higher in achieving the gain scores of general teaching competence than that of 'filler' group under integrated skill-based traditional practice teaching at the post test/retention test over pretest.

(b) Use of varying sources of Feedback and Skill-based Traditional Supervision :

(i) The performances of in-service teachers trained through microteaching for skill acquisition either under supervisory feedback or supervisory-cum-audiotape feedback were significantly higher on the gain scores of general teaching competence than that of teachers in the 'filler' group under skill-based traditional supervision at the post test/retention test over pretest.

(ii) The performances of in-service teachers trained through microteaching for skill acquisition under self-analysis through audiotape feedback were equally effective to that of the teachers in the 'filler' group ~~trained through~~ under skill-based traditional supervision on the gain scores of general teaching competence at the post test/retention test over pretest.

(iii) The performances of in-service teachers trained through microteaching for skill acquisition under varying sources of feedback either self-analysis through audiotape feedback, supervisory feedback or supervisory-cum-audiotape feedback were equally effective to that of teachers in the 'filler' group under the skill-based traditional supervision on the gain scores of general teaching competence at the retention test over post test.

(c) Teaching Performance Before and After the Course, and after one month gap :

(i) The in-service teachers trained through micro-teaching under varying sources of feedback either self-analysis through audiotape feedback, supervisory feedback, or supervisory-cum-audiotape feedback exhibited higher performances on the development of general teaching competence from pretest to post test and also from pretest to retention test.

(ii) The in-service teachers in the 'filler' group trained through integrated skill-based traditional practice teaching gained significant results on the development of general teaching competence from pretest to post test and also from pretest to retention test measures.

(iii) The in-service teachers trained either through integrated skill-based traditional practice teaching (in 'filler' group) under varying sources of feedback or skill-based traditional supervision did not differ significantly on the development of general teaching competence from post test to retention test after a gap of one month.

Conclusions Related to the Effect of Varying Sources of Feedback :

The following conclusions were related to the effect of varying sources of feedback treatments on the development of general teaching competence pertaining to the second objective and it's formulated two hypotheses, H_2 and H_3.

i) The in-service teachers trained through micro-teaching for skill acquisition under supervisory-cum-audiotape feedback did not differ significantly from that of the teachers trained through audio-tape feedback or supervisory feedback on the gain in scores of general teaching competence at post test/retention test over pretest/post test.

(ii) The in-service teachers trained through micro-teaching for skill acquisition under supervisory feedback did not differ significantly from that of the teachers under self-analysis through audio-tape feedback on the gain in scores of general teaching competence at post test/retention test over pretest/ post test.

(iii) In the context of Indian schools, microteaching under supervisory feedback with or without audio-tape was highly acceptable to use for the in-service teachers on the acquisition of teaching skills and for the development of general teaching competence. The acquisitions of teaching skills through micorteaching without any gadgets on the development of general teaching competence were equally effective to that of using the gadgets.

(iv) In accordance with the acquired teaching skills, the general teaching competence of the in-service teacher ~~and~~ was affected significantly using varying sources of feedback from pretest performances to the post test during macrolessons. After one month of the post test the teacher developed such competence which was equally effective to that post test performances.

Conclusions Related to Summated Scores on the Five Teaching Skills :

The following conclusions were related to the effect of acquisition of the five teaching skills on the ability to use them in macro-situation pertaining to the third objective and formulated two hypotheses H_4 and H_5.

(a) Microteaching and School Experience :

(i) The in-service teachers trained through micro-teaching for the acquisition of the five teaching skills of probing questioning, explaining illustrating with examples, stimulus variation and reinforcement under varying sources of feed-back exhibited significant gains in summated scores on the five skills of general teaching competence than that of the teachers of 'filler' group under integrated skill-based traditional practice teaching at the post test/retention test over pretest.

(ii) The in-service teachers trained through micro-teaching for the acquisition of teaching skills under varying sources of feedback did not differ significantly from that of the teachers trained through integrated skill-based traditional practice teaching in achieving gains in summated scores on the five skills of general teaching competence at the retention test over post test.

(b) Effect of feedback Treatments on the Skill Acquisition and its effect on Macrolesson :

The performances of in-service teachers trained through microteaching for the acquisition of the five teaching skills under self-analysis through audiotape feedback, supervisory feedback and supervisory-cum-audiotape feedback did not differ significantly among themselves on the gain in summated scores on the five teaching skills of general teaching competence at post test/retention test over pretest/post test.

(c) Teaching performances with respect to the Five Teaching Skills before and after the course and after one month gap :

(i) The in-service teachers trained through micro-teaching for the acquisition of the five teaching skills under varying sources of feedback significantly differed on the summated scores of the five skills of general teaching competence during macrolessons from pretest to post test/retention test.

(ii) The in-service teachers of 'filler' group trained through integrated skill-based traditional practice teaching for the acquisition of the five skills significantly differed on the summated scores on these skills of general teaching competence during macrolessons from pretest to post test and from pretest to retention test.

(iii) The in-service teachers trained either through microteaching or integrated skill-based traditional practice teaching (in 'filler' group) did not differ significantly on the summated scores on the five teaching skills of general teaching competence during macrolessons from their post test to retention test.

Conclusions Related to Attitudes Towards Teaching :

The following conclusions were related to the effect of skill acquisition onthe teachers' attitudes towards teaching pertaining to the fourth objective and the formulated two hypotheses H_6 and H_7 .

(i) The in-service teachers trained through micro-teaching for the acquisition of teaching skills under varying sources of feedback did not differ significantly on the gain scores on attitudes towards teaching from that of the teachers in the 'filler' group trained through skill-based traditional practice teaching at the post test over pretest.

(ii) The in-service teachers trained through micro-teaching for the acquisition of teaching skills under supervisory-cum-audiotape feedback were significantly more pronounced on the gains scores on the attitudes teaching technique than that of the teachers under self-analysis through audio-tape feedback at the post test over pretest measures.

(iii) The in-service teachers trained through micro-teaching from the acquisition of teaching skills either under self-analysis through audiotape feed back or supervisory-cum-audiotape feedback did not differ significantly from that of the teachers under supervisory feedback on the gains scores on the attitudes towards teaching at the post test over pretest.

(iv) The in-service teachers trained through any technique for the acquisition of teaching skills under varying sources of feedback did not differ significantly among themselves on the attitudes towards teaching at their pretest and post test measures.

Conclusions Related to the Reactions towards Microteaching :

The following conclusions on the reactions of in-service teachers on microteaching, the analytical approach of teaching skills, modification of teacher behaviour, effect of feedback treatments, subsequent effect on normal class teaching were noted.

(i) The in-service teachers reacted favourably towards microteaching, the techniques of skill acquisition, the modelling, and feedback through supervisory with or without audiotape.

(ii) The in-service teachers acknowledged the usefulness of the specific teaching skills upon which the microteaching course focused, and seemed willing to generalize this usefulness from the microteaching situation to their normal class teaching on the development of general teaching competence.

(iii) The microteaching course provided the in-service teachers with a different instructional model from those with which they were previously familiar. More acceptance of group work, more pupil participation, less emphasis on formal teaching, effect of teachers' acquisitions of skills on the development of pupils' learning even for low and high achievers, individualised instruction were all detectable in their post-course responses.

(iv) The self-analysis through audiotape feedback was accepted unfavourably by the in-service teachers rather they needed any supervisory assistance during skill acquisitions through microteaching.

(v) The approach of integrating teaching skills for normal classroom teaching was favourably accepted by the in-service teachers. But they suggested to

minimise the administrative and academic-administrative difficulties like work load, teacher-pupil ratio, stereotyped curriculum, time factor and so on.

(vi) The in-service teachers stated the sequence of teaching skills for practice as follows : stimulus variation, probing questioning, reinforcement, explaining, and illustrating with examples.

(vii) As per the Minicourse format the in-service teachers suggested to practise the specific components or sub-components of difficult teaching skills like probing questioning and explaining.

(viii) Finally, the teachers reported that skill-based microteaching is an integral part of in-service teachers' training programme for the development of teaching competence pertaining to the specific teaching skills or to the development of general teaching competence.

5.5. EDUCATIONAL IMPLICATIONS :

Based upon the results, their discussions and conclusions of this study the following major evidences in support of microteaching and its feasibility in the in-service teachers' training programme are drawn : (i) The microteaching in the absence of sophisticated gadgets along with audiotape is feasible for the in-service programme, (ii) The teaching skills which were identified and in which the instructional materials were developed for preservice teachers' training programme can be adaptable in in-service programme of teachers' training. (iii) The skill-based microteaching is an effective in-service training technique under supervisory feedback with or without tape recorder on the development of general teaching

competence, (iv) In unavoidable circumstances if microteaching may not be possible in a particular school situation ~~to adopt~~ for the acquisition of teahhing skills, ~~or~~ then in an alternate situation, the teachers may use the instructional materials of teaching skills, discuss analytically, view some demonstrated microlessons on each skill, and at the same time view demonstrated macrolessons on integrated skills approach. Thereafter, the teachers may undergo some training on these skills as per the 'filler' group in this present project. They may practise these skills through traditional training in macro-lessons but on the integrated-skill approach under skill-based supervisory feedback. Among themselves the enlightened teacher may act as the model teacher as well as the supervisor.

The skill-based microteaching programme should be adopted for the school teachers both for primary and secondary level for continuing professional development in teaching cpmpetencies, extending their behavioural patterns in acquiring new skills and refining old one, in curriculum development, counselling and on the whole, in possessing a large repertoire of strategies and tactics for best suited in classroom transaction.

For implementing this activity in in-sefvice programme three dominant approaches can be planned by which a relatively individualised, even personalised learning on instructional skills and tactics, adopting modern approaches in the curriculum development, personal growth, career progression

and professional development will be evolved. These three dominant approaches may be : On-site Activity, Teachers' Centres (Off-campus Activity), and Cooperative Training Complex.

(a) On-site Activity :- The teacher can engage himself in his own in-campus activity either in real or simulated conditions. Without using gadgets the teachers can enlighten his knowledge through team-teaching approach within microteaching. Team leader role facilitate joint teacher diagnosis and planning, systematic observation of teaching, modelling and feedback, etc. Through this type the deficiencies of the teachers as well as their own pupil can be developed through a closed working discussions. The immediate changes in classroom transaction can be visualised through these discussions. Moreover, through the microteaching format the deficiency in any particular skill among the teachers for improvement, new problems created by pupils in classroom for proper handling, new strategies on interaction style, developing the low achievers to a desired level, discriminating the children according to their abilities, and so on can be undertaken during this activity.

(b) Teachers' Centres :- This is an off-campus activity outside the school and their own pupils. Through the workshops, summer institutes, seminars and refresher courses the skill-based microteaching programme can be implemented. The extension departments, Universities, Teachers' Training Institutions, or any microteaching clinic should take such initiative. In these off-campus activity both pedagogical aspect of microteaching,

the principles underlying, research evidences; and in practical aspect the practice of skills in simulated conditions, adopting microteaching and minicourse format in other situations like training of supervisors and teacher educators, counsellors, headmasters may be the specific programmes for the in-service personnels.

(c) Cooperative Training Complex :- This may be an ideal vehicle for establishing the exchanges of teachers, having well competent on various teaching skills and the skill of integration of all the skills as per the subject content, acting as dynamic supervisor in microteaching sessions, and so on from one school to another. The deficient teacher in one school can be strengthened through another school of having competent teacher. The experienced master teachers, in this approach, are not only able to pursue their own education but again contribute to both the pre- and in-service training endeavors of others.

Usually in the class teaching the teachers give much emphasis on subject matter rather than the deep attention to the weaker sections, no-response or shy pupils, and the above average pupil. The pupil participation in a larger class is too poor, back benchers are generally neglected, negative reinforcements or the punishments to the children are usually given, too much stereotyped lessons are taken without giving much emphasis on psychology of the child, and the like. The experienced teachers themselves, in their opinion, have reached the performance plateau on teaching competencies early in their careers. Hence, to overcome these

inadequacies within themselves and developing a desired set, microteaching with skill-based programme is highly necessary for the teachers' training programme either in real or simulated conditions. All the teaching skills in addition to the used five skills for this project may be acquired by the teachers for refining their behavioural pattern for best pupil learning. But before adopting the skill-based microteaching the considerable attention should be given to the individual differences among the teachers and the pupils, the nature of the particular skills being practised, and the differences among the subject ideologies.

In primary and secondary stages, number of pupils are leaving the school at their early stages. Similarly huge number of children are lacking behind the proper education due to some reasons or the other. Therefore the wastage and stagnation among them are more prevailing day by day. To face the problem the teacher should adopt the specific technique on a microteaching format. During the field experiment of the present project an observation was noted about the cognitive development of the weaker sections of pupils in the classroom during the normal teaching after the practice of teaching skills through microteaching. The refined behavioural pattern of the teacher under practice had a direct impact on the pupil behaviour for achieving the educational attainments. Hence, to minimise the wastage and stagnation from the schools, a line of direction is given below :

(1) Through the microteaching technique and using specific teaching skills like, probing questioning, other lower and higher order questioning skills the weaker pupils may be discriminated from the larger class on their difficulties about the specific area or concept of the content. They will be grouped according to the difficulty level on the specific area of the content.
(2) Then the teacher should plan the techniques of handling these pupils for their difficulty in the concept development. The lower order questioning, prompting, seeking information, redirection with the reinforcing statements and stimulus variation, illustrating with examples from their past experiences and easily approachable situations may be used in developing the mastery in them over the concept. However, the planning will be made on the following criteria like, the past experience of the pupil, the content for the development, facilities of separate room, work load both for pupil and teacher, separate time facilities, etc.
(3) Through the varied skills of the teacher, the microteaching cycle will be implemented for developing the concept in that group of pupils. During the 'feedback' session the teacher can himself assess the performances of those pupils, the teaching skills adopted during 'teach' session, the extent of pupils' achievement on the particular concept and the other alternative techniques for improvement. The same group of pupils will be again in the 'reteach' session. The teacher may use the same subject content for the enriched knowledge, or a similar concept/unit or similar episodes for verifying their understanding. The skills can be used at his will but with the intension of achieving the target. The cycle will continue till the development of the

concept or understanding on the subject content in such group of pupils. However, an insight may be given into a planned micro 'micro-class' for the development of both weaker and gifted pupils in the classroom. The basic idea of micro-class may be the dual responsibility of the teacher in developing his own behavioural pattern along with the pupils' learning.

The primary aim of supervision is the improvement of instruction. But the inspecting authorities and the headmasters of the schools supervise the teachers' teaching on an authoritarian outlook finding out only the faults of the teachers, giving vague, unnecessary and subjective suggestions for improvement. The instructional materials at least on the five skills of probing questioning, explaining, illustrating with examples, stimulus variation, and reinforcement may be undertaken for their modelling purposes. If necessary they may practise those skills for developing better behavioural pattern. The NCERT can take steps in implementing a sound programme for providing the necessary skill development to the inspecting authorities and headmasters of the schools through orientation and refersher courses.

The Government of India is emphasising much on adult literacy programme. The instructors who are placed in the village centres to educate the adults must be trained enough on the techniques of immediate literacy programme, the non-formal education, multiple entry to the formal schooling and the like. The identification and development of such skills and techniques for the instructors are required for immediate acquisition to implement

this effective programme. Hence, microteaching format may be adopted for developing the competencies on instructional skills, the modern curricula and methodologies. They should have a chance to gain competence over these strategies before or after the entry into these profession. The Directorate of Adult Education should take the necessary and favourable steps for implementing the microteaching courses for instructors, and their personnels in developing the required strategies and techniques. The instructional materials should be developed well in advance keeping in view of the ~~aski~~ target achievement of adult literacy programme.

The in-service activities through microteaching may be adopted in higher education and in other professional education. Though during present time there is no training facilities for the teaching personnels of these faculties but this microteaching format will definitely be helpful in creating rapport among the teachers, and students, minimising the students' indiscipline, on the development of various teaching skills, enriched behavioural pattern, and achieving the teaching competence on skills and techniques in higher and vocational education.

Illich (1971) and Freire (1970) attacked traditional styles of education from different angles. They both started from a concern for the dignity and worth of individual. Their philosophies were the liberation of men and women from an oppressive or exploitative enviranment. Both reformers contend that the teacher-dominated system of education robs the learner of his self-respect.

The way in which the teacher deals with his pupil cancels the safe guards of individual freedom. The microteaching technique is a footstep to keep pace with these changing needs in minimising the dominance of the teacher in the classroom. Though this is a technique of teachers' training but the acquired skills can directly influence the pupils for maximising their participations in class discussions; activising themselves; providing rapport and interaction; developing self-determination, self-awareness, self-actualisation and non-directive learning. Hence, through this technique the learners definitely are liberated from the oppression of the traditional teacher. Srinivasan (1977) has referred,"....to serve the purposes of social revolution, education must be capable of helping man and he becomes more aware of, and responsible for himself and his world through a process of reflection." Both the teacher and pupil become jointly responsible for a process in which all grow perfectly. Thus, microteaching with skill acquisition is a partial answer to this issue.

5.6. SUGGESTIONS FOR FURTHER RESEARCH :

As per the statement of Allen and Eve (1968),"Micro-teaching stands today as one of the few experimental techniques which by its very structure encourages a combination of theory and practice, research and training, innovation and implementation." They have stated further that as a teachers' training technique, microteaching is in its infancy, and many issues related to its most effective use have not as yet been resolved. Even now the same position in the field of researches in

microteaching is prevailing. However, in view of the present study the following areas of further research are suggested :

(a) Effectiveness of Microteaching :

Studies on the effectiveness of microteaching upon the general teaching competence in comparison either with traditional practice teaching (not like 'filler' group under integrated skill-based traditional teaching in this present study), minicourses, interaction analysis system, simulation and gaming, group dynamics, programmed instruction, competency-based teacher education, computor-assisted instruction or other behaviour modification techniques may be undertaken in the in-service teachers' training programme. The overall objective of these studies may be a close look for possessing the strategies and tactics to meet the new challenges in the teaching-learning processes.

Like the National Project of the NCERT, a similar project may also be undertaken on in-service programme to test the effectiveness of microteaching and its feasibility in Indian context for teachers' training either in in-campus or in off-campus activity.

Another study may be taken up on the effectiveness of microteaching on the development of probing questioning under self-analysis through audiotape/videotape compared to that of minicourses and further development on teaching competence in macro-situation.

In the present context a separate teachers' training technique, 'integrated skill-based traditional practice teaching' was undertaken to study its relative effectiveness with micro-teaching. But some other comparative studies on the effectiveness of mini-teaching over the integrated skill-based traditional practice teaching or even only traditional teaching without skill-based can be investigated in in-service programme.

(b) Various Dimensions Within Microteaching :

On the five broad dimensions with wide varieties on modelling, micro-setting, supervision and feedback, microteaching conditions, and same or different unit in teach/reteach sesssions, the studies should be expected to ascertain the relative effectiveness among themselves on the development of either teaching skills or the general teaching competence.

There was no convincing research evidences regarding the optimal number of pupils for microteaching sessions. Similar was the case of time schedule in each session. These issues can easily be investigated by providing indentical microteaching training to several groups of teachers while systematically varying the length of the microteaching session; and varying the number of pupils in various groups.

Even within specific feedback dimensions the supervisory or peer teacher strategies : direct/ indirect, and strengths/ alternativistic may be undertaken as other variables. Hence, a study may be on the effect of supervisory/peer strategies like :

direct strengths and indirect strengths; direct alternativistic and indirect alternativistic for the acquisition of teaching skills through microteaching and teachers perception towards their supervisors/peers.

(c) Development of Instructional Materials :

More studies are needed to identify the teaching skills for an effective classroom teacher. The present study tested the validation of instructional materials on the five teaching skills on in-service setting. Out of agglomerated twenty one skills in the BGTC Schedule only thirteen skills came with their instructional materials. The researchers may take some more projects on identifying and developing the other teaching skills with their instructional materials for in-service teachers' training programme and an integrated picture on effectiveness of microteaching after acquisition of required skills may be ascertained.

The instructional materials on minicourses on lower order and higher order cognitive questions for acquisitions of in-service teachers of kindergarten, elementary, junior high school, and intermediate in Indian context may be developed. Similarly,the materials may be prepared on the twelve teaching skills on 'effective questioning' used in self-instructional microteaching courses by Perrott and her colleagues taking their frames of objectives : encouraging pupils' readiness to respond, improving pupils' initial responses, increasing the level and amount of pupil participation, and eliminating the habits which disrupt the flow of discussion.

The teacher's handbook, films and film strips may also be developed on various teaching skills. Moreover, the materials on skill development through self-instructional courses should be so designed that without using the gadgets, the teacher can acquire the skills. The observation schedules, the check lists and other proformas may be used during feedback sessions.

(d) The Teacher-Pupil Interaction :

The ultimate objective of the teacher education programme is the improved pupil learning and perhaps the most obvious problem facing of this programme is finding some way to relate teacher performance to pupil performance. Hence, the teacher trainers must begin to face the problems of determining the relationships between their performances. The audiotape or videotape recordings during 'teach' and 'reteach' sessions simultaneously can be assessed about the performances of both the teacher and the pupils. Moreover, in absence of such gadgets the more number of supervisors should be stationed during microteaching sessions and observed the performances separately for the teacher under practice and the pupils in the microlesson. This kind of studies may also help to discriminate the difficulties and to diagnose the initial stages of the pupil; and thereafter necessary help may be given for improving their behavioural patterns.

Some other comparative study may also be undertaken about the achievement of the pupils taught by the teachers trained through microteaching and that of pupils taught by the traditional teachers.

For this proposed study the matched teachers and also the matched pupils are necessary during the sampling. Another study may be projected on the 'effect of teachers' teaching competence acquired through skill-based microteaching on the pupils' learning'.

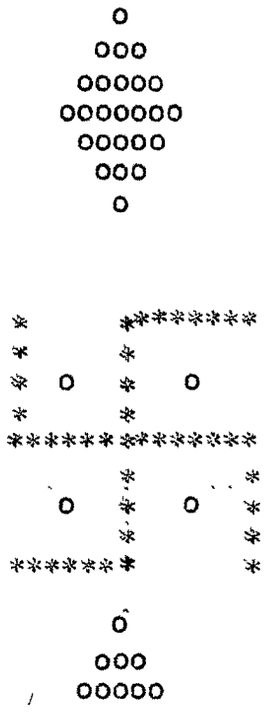
(e) Other Studies Related to Microteaching Format :

Studies on optimal number of microteaching cycles till achieving the teaching competence on a particular skill i.e. from no microteaching cycle to maximum number of cycles (say-no cycle, one cycle, two cycles, three cycles, and so on) and its practice effect on teaching competence may be taken up either in in-service or preservice programme.

Categorisation and hierarchy of the teaching skills may be investigated. Turney, et al.(1976) have worked on this aspect but this process may require exploration from different strategies in teaching.

Studies on cost effectiveness of microteaching can also be undertaken wherever microteaching has been introduced as a training technique either at preservice stage or at in-service stage. This can be studied in the context of time, money, and pedagogical outcomes.

Adoption of Minicourses 1, 4, 8, 9, and 12; Self-instructional Microteaching Courses on Effective Questioning in Indian context can be taken up for other projects through some National organisations like the N.C.E.R.T., and the ICSSR to visualise the effect on the learning of the teacher and the pupil.

Studies on trainees' perceptions of their microteaching performance can be investigated. These perceptions can provide evidences which can help the teacher educators, the supervisors, and the researchers to develop a clear understanding of the trainees' psychological processes as they go through a micro-teaching programme.

Before wide implementation of microteaching in in-service teachers' training programme the studies which are suggested for undertaking the research projects may be widely investigated and analysed in terms of pedagogical outcomes.