C H A P T E R IV

DISCUSSION OF THE RESULTS

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4.0. INTRODUCTION :

All the hypotheses of this study were tested, their results were analysed and interpreted, and finally reported in the third chapter. These interpreted results were discussed critically in the context of other empirical findings. The discussions were made on the following broad frame of references : effectiveness of microteaching over integrated skill-based traditional practice teaching on the development of general teaching competence; relative effectiveness of various feedback treatments in the microteaching technique on the development of general teaching competence; effect of training in the five teaching skills on the ability to use them in macrolessons considering only the summated scores on the five skills of general teaching competence, and the effect of acquisition of teaching skills on teachers' attitudes towards teaching, as well as, their reactions towards microteaching. However, the detailed discussions of inferences drawn after testing the hypotheses and the discussions through the related studies are presented in this chapter. The sequence of presentation is in accordance with the objectives and hypotheses of this experimental project.

4.1. EFFECTIVENESS OF MICROTEACHING :

The first objective of this experimental project dealt with the study of effectiveness of microteaching over integrated approach of skill-based traditional practice teaching under various feedback treatments on the development of general teaching

competence. To avoid the Hawthorne effect the 'filler' task specifying the skill acquisition through integrated approach was emphasised during the treatment of traditional practices at the time of experimentation and a comparative study with the microteaching groups were tested on the development of general teaching competence. The first hypothesis was tested in accordance with the gain scores on general teaching competence at post test over pretest (G_1), retention test over pretest (G_2), and at retention test over post test (G_3).

The tenability of the hypothesis H_1 in case of G_1 and G_2 gain scores was accepted but the same was rejected for the G_3 gain scores. Hence, the teachers practised through microteaching under varying sources of feedback were significantly higher on the gain scores of general teaching competence at the post test/ retention test over pretest only than that of the teachers under integrated approach of skill-based traditional practice. But, the teachers practised through microteaching were not significantly higher on that of the gain scores at retention test over post test than the teachers under integrated skill-based traditional practice.

On the multiple comparisons among the contrasting groups of various treatments, further inferences were also drawn. The treatments under the microteaching group under self-analysis through audiotape feedback were equally effective on the gain scores of the general teaching competence at the post test/ retention test over pretest/post test measures i.e. on G_1, G_2

and G_3 gains to that of treatments under integrated skill-based traditional supervisory practices. On the other hand the teachers of other two microteaching groups under varying sources of feedback - i.e. supervisory-cum-audiotape and supervisory feedback were significantly higher in achieveing the gain scores on general teaching competence at the post test/retention test over pretest only (G_1 and G_2 gains) than that of the teachers under traditional supervision with skill-based approach. For the gain scores on general teaching competence at retention test over post test (G_3 gain) the performances of the teachers under these above treatments were equally effective.

In testing the effect of acquisition of teaching skills on the teachers of three microteaching groups under varying sources of feedback and the teachers of 'filler' group having integrated skill-based traditional supervisory practices on the development of general teaching competence, it was also observed that significant differences on the mean values from pretest to post test and from pretest to retention test were prevailing at the level of 0.001 . Hence, it was concluded that the acquisition of teaching skills either through microteaching or through skill-based traditional practice teaching showed a significant impact on the development of general teaching competnece. From this infernetial result a further statement was drawn about the practice of teaching skills in an integrated approach through macroteaching for the development of general teaching competence. But in examining the differential effect of microteaching and integrated skill-based traditional practice teaching, the treatments

under microteaching technique were highly effective on the development of general teaching competence to that of latter treatments in traditional practice. From the same observation it was found that there were no significant differences among the post test and retention test measures on general teaching competence. for all the groups of microteaching and that of integrated approach of skill training in 'filler' group.

4.1.1. Discussion of Hypothesis H_1 :

On the basis of the findings of the present study the following overall discussions may be helpful to understand the fact for accepting the hypothesis on the effectiveness of microteaching over integrated skill-based traditional practice teaching on the gain scores of general teaching competence at post test/ retention test over pretest (for G_1 and G_2 gains) and rejecting the hypothesis on the gain scores at retention test over post test (for G_3 gain). In the hypothesis H_1 these differences in the results: effectiveness of microteaching over traditional training on two cases of gain scores and retaining neutral with that of traditional training on the third gain score - posed a question as what caused the differences. One factor, which might be the cause on the difference of microteaching and integrated skill-based traditional practice teaching was the total structure. Both, microteaching in real condition and traditional practice in normal class situation were having different patterns of providing skill training. Microteaching was analytical in its approach, whereas the integrated approach

of skill-based traditional practice of teacher training was synthetical. The former technique provided a learning environment for the teachers under training which was less complex and deliberate practice of a particular skill. Moreover, it provided a context in which the teacher's primary responsibility was to learn and to refine his own behavioural pattern in accordance with a particular skill under training, not that of coping with the various needs and demands of the pupils in normal classroom. It also allowed a repeated practice of that skill with the immediate and dynamic feedback till the consistency in the desired and actual behavioural pattern.

Though an equivalent treatment having some special measures on skill-based feedback during traditional supervision was adopted even then the teachers under this 'filler' group were lacking the potential advantages of analytical approach in skill training. Moreover, one might be that as the teachers were in normal classroom, they were in dual role in changing their own behavioural pattern along with the development of pupils' learning. Specific remedial measures for giving feedback were suggested on the five teaching skills after a macro-lesson. But it was difficult for the teacher under training to cope with these suggestions because of various complexities in the large class : number of teaching skills at a time, varied behavioural patterns of forty or more pupils at a time, maintenance of discipline and difficulty in controlling the large class, individual differences among the pupils, dominance of content-approach rather than skill-approach, learning of both teacher and pupil at a time, and the like. Further, no

repeated practice in macrolesson was adopted for the teachers in the 'filler' group using specific teaching skills or even using the same unit of the content, taken in the previous macrolesson.

T he another factor might be the cause of transfer effect. The teachers under microteaching groups learned the five teaching skills, developed the specific behavioural pattern and achieved the mastery of integration of these teaching skills more easily than the teachers in the 'filler' group. The teachers in the former groups also displayed these skills in a better way during macrolessons than the teachers in the latter group.

Thus, on these view points the gain scores from pretest to post test and from pretest to retention test on the development of general teaching competence were higher for the teachers under microteaching than that of 'filler' group having integrated approach of skill-based traditional practice teaching.

The mean values on general teaching competence of two measures at post test and retention test within the same group were not significantly different. Even the same inferential results were sustained when any two contrasting groups at the gain scores on the general teaching competence during retention test over that of post test were analysed for testing the significant of mean differences. The teachers in each group were exhibited the consistent patterns of behaviour even after a month of post testing. During this one month gap their usual

class teaching did not give further effect at the retention test on general teaching competence in enhancing a positive difference of scores from post test. It might be the reason that the practice effect of teaching skill influenced the teachers to such an extent that the usual one month class teaching did not affect the general teaching competence for further gain. Hence, the teachers either under microteaching or traditional practice with the 'filler' task reached a performance plateau in their behavioural patterns and attended a point of saturation on teaching competence.

The tenability of null characteristics among the teachers of self-analysis through audiotape feedback and the teachers under traditional supervision having the 'filler' task of skill-based approach might be the cause of the unfavourable reactions of the participating teachers towards the use of audiotape. From the Self-Evaluation Proforma and during the content analysis of the teachers' reactions towards microteaching it was clearly visualised that the non-verbal aspects were not properly feedback through the audiotape. The teachers under self-analysis through audiotape feedback reacted negatively the use of audiotape and also the observation schedules in analysing their own behavioural patterns themselves during 'feedback' and 'refeedback'. They wanted separate source of feedback other than self-analysis through audiotape for the acquisition of teaching skills. Another reason might be that the teachers under self-analysis through audiotape feedback

group were biased on the over confidence on their competence in teaching or/and conditioned to the traditional teaching. But this possibilities may be ruled out because of their favourable acceptance towards microteaching and analytical approach of skill training. Moreover, a further possibility might be the effect of non-specific sixteen skills of the BGTC Schedule other than the five skills under consideration in minimising the gain in scores of general teaching competence of the teachers under the microteaching group of self-analysis through audiotape feedback. Because, during the testing the hypothesis H_4 at the gain in summated scores on the five skills of general teaching competence of the post test/retention test over pretest it was observed that the teachers under this microteaching group of self-anaylysis were significantly higher in achieving the gain in summated scores on the five skills out of twenty one skills of the BGTC Schedule than that of 'filler' group. But in this present discussion of Hypothesis H_1, the teachers' performances were measured on the total twenty one skills including the five skills and found an equal gain on the general teaching competence in both the groups, i.e. self-analysis through audiotape feedback in microteaching and integrated skill-based traditional practice teaching in 'filler' group. Hence, this might be a strong reason in accepting the possibilities of effect of non-specific teaching skills other than the specific five skills on the development of general teaching competence.

Studies Related to Hypothesis H_1 :

This experimental study was discussed in the context of the findings of the related studies for the purpose of empirical validation of effectiveness of microteaching. Though a number of related studies reviewed in the caption 1.4.1. yeilded the favourable results on the effectiveness of microteaching and established its superiority over the traditional practice even then some of these are referred herewith the differential discussions pertaining to the present context.

Galàssi, et al. (1974) in a study on the use of written versus videotape instruction to train the in-service teachers in questioning skills of Minicourse-9 referred that the teachers who participated in this course learned to ask higher percentage of thought questions in class discussions than the teachers who did not participate in the course. One of the most significant findings of their study was the increase in frequency of higher cognitive responses and long responses in pupil behaviour produced by the experimental treatment rather than control one. In the present study the teachers in the experimental groups who were in microteaching treatments exhibited significant changes on achieving the gains on general teaching competence than those who were not given such treatment. The same pretest - post test parallel group designs in both the studies were undertaken. The teachers in the present study were exposed to both perceptual and symbolic modelling on five teaching skills including the skill of probing questioning but not in the minicourse format. The total

thirty three teachers from secondary school were the measuring subjects in this study, whereas fifty six were in their study. During the statistical analysis they adopted the ANCOVA with the pre-course percentage of higher cognitive questions as the covariate, whereas in the present study both parametric and non-parametric measures (one-factor ANOVA, Scheffe' method and Wilcoxon test) were employed to analyse the gain scores on general teaching competence. The experimental groups on video and written instructions in their study were significantly higher on scores than that of the control group and the similar findings were revealed in this present context on the gain in scores of general teaching competence at the post test/retention test over pretest/post test.

Bhattacharya (1974) studied the effectiveness of micro-teaching over the traditional training of in-service teachers of polytechnic training institute upon the indirect teacher behaviour. He reported that the significant changes in indirect behaviour of trainees were produced by the group receiving microteaching than the groups having traditional approach. The present study indicated the same line of conclusions as in this reported results on the behavioural patterns on the development of general teaching competence.

Moreover, Borg, et al. (1970); Bredange and Tengsel (1974); Veenman (1974); Klinzing Eurich (1975); and Perrott, et al. (1975) reported that skill-based microteaching can be effectively transfered to the normal classroom teaching. Though they were not

specific on the study of effectiveness of microteaching over skill-based traditional practices even then they reported that the microteaching or the minicourse formats with self-evaluation through audio/videotape were proved to be highly effective techniques on the development of in-service teacher behaviour.

The above studies were taken from the in-service teachers' training programme to relate the findings and their other observations with the present study. The following preservice studies are referred here which were previously examined critically with a view to support the present findings on in-service teachers' training activities.

At the national level a comprehensive and systematic research study was undertaken by NCERT in collaboration with CASE and nine teachers training institutions during the first phase and twenty two institutions in the second phase (Das, et al. 1976 and Das, et al. 1977). One of the major objectives of this project was the relative effectiveness of microteaching with the traditional practice teaching on the development of general teaching competence. This study was conducted on a wider sample of preservice teachers of teachers' training institutions with a parallel group experimental design. The dependent variable was the general teaching competence developed through standard microteaching technique (SMT), the modified microteaching technique (MMT), and the traditional technique (TT) of teachers' training. Among the criterion measures the Baroda General Teaching Competence Schedule was one of them to measure the gain

scores on general teaching competence from pretest/post test to post test/retention test. The main finding of this study was that the student teachers trained through microteaching or in modified form acquire higher teaching competence than the traditional training techniques ($p < 0.01$). Considering the comparative analysis of the present study with this national project a number of conditions were the same:the design, the dependent variable, the criterion measures and the specific five teaching skills for practice. After analysing the data through ANOVA, Scheffe' method and Wilcoxon test, the results drawn in the present study were in consistency with the National Project on the effectiveness of microteaching over traditional training on the development of general teaching competence even if integrated approach of skill training was there. Only one major difference on the inferential results revealed that thetreatmentsunder self-analysis through audiotape feedback in microteaching was equally effective to that of the 'filler' group having skill-based traditional supervisory practices on the development of general teaching competence.

Singh (1974) compared the effectiveness of microteaching technique, Flanders' interaction analysis system and traditional method of teachers' training on the criterion variable of verbal behaviour of teachers. Comparison of matrices for statistical significance was made by putting them to test by likelihood ratio. The student teachers trained through microteaching showed significant changes in their verbal teaching behaviour compared to that of traditional training ($p < 0.01$). The verbal behaviours

were in the direction of using more and more acts of praising, encouraging the pupils, accepting, clarifying, and building up the ideas of their pupils, providing opportunities for flexible inter-communication and pupil initiation. But in the present study five teaching skills having both cognitive and affective behavioural components were used for acquisition and subsequent development of general teaching competence.

Passi (1976) and Joshi (1977) in their doctoral studies found that the student teachers practising through micro-teaching under simulated conditions acquired higher level of general teaching competence than that of traditional training technique. Both these experiments were conducted with parallel group covariance design. In the present study a pretest - post test parallel group design was undertaken. The study was conducted in real conditions by employing in-service teachers in their respective schools. The findings of above two studies were the same on the effectiveness of microteaching over traditional training on the development of general teaching competence. But the present study was some what different to these studies. The teachers in the 'filler' group were not restricted to the traditional practice teaching but under integrated approach of skill-based traditional practices. The findings of the present study revealed that the effectiveness of microteaching under supervisory with or without audiotape feedback (not under self-analysis through audiotape feedback) were sustained over the skill-based traditional practice teaching on the development of general teaching competence.

Another experimental study was carried out in Texas by Bell (1968) using home economics teacher trainees as subjects. She compared a control group undergoing a teaching practice of traditional approach with an experimental group participated in microteaching. Some of the conclusions of her study were : (1) the programme was relatively more effective in teacher preparation than the usual form of training provided by preservice student teaching practices, (2) self-evaluation of student teachers was more effective in the case of microteaching than traditional student teaching, (3) the microteaching group showed significant gains in teaching performance from initial lesson to final lesson ($p < 0.01$). The present study revealed a similar finding about the effectiveness of microteaching over the integrated approach of skill-based traditional practice. The same result was also sustained as per the third findings of her study. But in contrast to her second finding the treatments under microteaching using self-analysis through audiotape feedback were equally effective to that of 'filler' group.

Several experiments were conducted by Saunders, et al. (1975) to evaluate alternative methods for training of preservice teachers in questioning skills which were the adopted formats of the Minicourse. Comparisons of pre- and post training videotapes of teaching performances revealed that regular and peer microteaching produced the most consistent and substantial gains, whereas the classroom observation and traditional lecture-discussion treatments were less effective. Moreover, a pertinent

finding was also revealed that the materials developed for in-service use may be effective in preservice skill acquisition programmes. In the present study the in-service teachers were the subjects undergoing the various feedback treatments. Both the studies were designed on a pre- and post test control/ parallel group. Instead of minicourse format, the five teaching skills including the skill of probing questioning were undertaken for practice. The feasibility of in-service minicourse format was tested for preservice teachers in Saunders' study, whereas the feasibility of five teaching skills developed for preservice was tested and found effective in changing the behavioural patterns of in-service teachers during the present study.

4.1.2. Conclusions Related to Effectiveness of Microteaching :

On the basis of the results and discussions 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 the following conclusions were drawn :

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

The in-service school teachers in the microteaching groups for the acquisition of teaching skills exhibited significantly higher in achieving the gain scores of general teaching ~~acpts~~ 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 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 microteaching 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 microteaching or 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.

4.2. EFFECT OF FEEDBACK WITHIN MICROTEACHING :

The second objective of this experimental study was pertaining to a comparative study to find out the relative effectiveness of varying sources of feedback : self-analysis through audiotape feedback, supervisory feedback, and supervisory-cum-audiotape feedback within microteaching technique on the development of general teaching competence. The two hypotheses H_2 and H_3, were formulated. The hypothesis H_2 was ~~about~~ related to the effectiveness of supervisory-cum-audiotape feedback over other two feedback treatments and the other hypothesis H_3 was ~~about~~ on the effectiveness of supervisory feedback over self-analysis through audiotape feedback. These two hypotheses were formulated on the gain in scores of general teaching competence at post test over pretest (G_1), retention test over pretest (G_2), and retention test over post test (G_3).

4.2.1. Discussion of Hypotheses H_2 and H_3 :

After testing the hypotheses through the same statistical measures it was observed that both the hypotheses were rejected even in all the cases of gain scores G_1, G_2, and G_3 and the tenabilities of null characteristics were sustained. Hence, the treatments under microteaching technique using varying scores of feedback : self-analysis through audiotape feedback, supervisory feedback and supervisory-cum-audiotape feedback were equally effective on the gain in scores of the general teaching competence for G_1, G_2 and G_3 scores . Practice of teaching skills through microteaching under varying sources of feedback did not produce significant differential effect on the gain scores of general teaching competence.

Along with these hypotheses testing the mean gain differences of general teaching competence scores from pretest to post test, pretest to retention test and from post test to retention test of a particular group of teachers using any one of the varying sources of feedback on acquisition of skills through microteaching were tested. The purpose of testing was to know the impact of feedback treatment during the acquisition of teaching skills on the development of general teaching competence. After employing the statistical measures of correlated samples (two measures for the same individual) it was found that the teachers trained through microteaching for the acquisition of teaching skills under any one of the feedback treatments

achieved significantly higher scores on the development of general teaching competence at the post test/retention test than that of pretest. But the same teachers under a particular group did not achieve higher score at retention test than that of post test. However, it was observed that the feedback treatments affect the learning of the teachers on acquisition of teaching skills through microteaching and also on the development of general teaching competence . The teacher who was in initial stage of teaching performances came to a certain stage of performances after the skill acquisitions through a feedback mechanism where the consistent behavioural pattern towards teaching was sustained. The teacher achieved the same scores on the general teaching competence at post test and after one month of post test i.e. at retention test. Hence, it may be infered that the teachers in each group reached a performance plateau in their behavioural patterns even after one month of post test measures and that might be perhaps due to the acquisition of teaching skills under varying sources of feedback.

The dynamic feedback either through 'self-analysis through audiotape', 'supervisor with or without audiotape' in microteaching affects the whole system of training process in achieving the desired pattern of behaviour. Till consistency of the intented behaviour with the desired one the teacher went on practising the teaching skill using the specific feedback treatment. This cybernetic approach in microteaching having a

closed-loop system of feedback mechanism helped the teacher in developing the competence on the particular teaching skill. In each skill the same system was going on during the practice phase and by which a favourable effect on the development of general teaching competence was observed on the gain scores at post test/ retention test over pretest measures.

When considering the relative effectiveness of various feedback treatments the study revealed that the performances of the teachers under three feedback treatments in microteaching were equally effective ~~as~~ for the three gain scores of G_1, G_2 and G_3. The teachers under supervisory-cum-audiotape feedback got the maximum benefit in using audiotape for self-analysis and at the same time the supervisor's feedback, whereas the other two groups used only one such treatments in each. Even then no significant achievement was ~~infered~~ observed on the relative effectiveness of various feedback treatments. The following factors might affect on the three groups sustaining the similar inferences on the gain scores of the general teaching competence.

One might be that the teachers under self-analysis through audiotape were more proned to self-awareness and understanding in analysing their own teaching during feedback treatments. Though their reactions towards the uses of audiotape were unfavourable for the development of non-verbal aspects of teacher behaviour, even then in comparison with the other feedback treatments within microteaching no significant decrease in gain scores were found. Considering the other sources of feedback

measures the teachers under supervisory feedback or under supervisory-cum-audiotape feedback might be lacking the effort or commitment of learning new skills in refining their behavioural patterns in comparison with the nature and sources feedback treatments. The reasons might be that perhaps they were over confident on achieving teaching competence through skill acquisitions. Any negative feeling towards supervisor's suggestions (though not a single teacher reacted on this aspect through the self-evaluation proforma), teachers' inquisitiveness on their recorded voice without attending much on their errors and their rectifications, restriction of equivalent time limit to both the groups might also influence the teachers of both the groups in declining the intented improvement in comparison with the teachers using self-analysis through audiotape feedback. Moreover, the individual differences among the teachers, the academic and administrative hinderances, and the situational differences might be prevailing during the treatments of all the groups. The equal opportunities before and after practice of teaching skills, equivalent work load till the completion of experiment were also existing during the experimentation. Hence, all these factors might have some effect in yielding the similar results of teachers' achievement even if they were in various feedback treatments.

From the conclusions of the hypothesis H_1 it was observed that the performances of the teachers under microteaching using self-analysis through audiotape were equally effective to that of skill-based traditional supervison on the development of general teaching

competence. From the discussions made so far it was said to be desirable for the teachers to use the supervisory feedback with or without audiotape instead of self-analysis through audiotape feedback during microteaching technique for the acquisition of teaching skills on the development of general teaching competence.

Studies Related to Hypotheses H_2 and H_3 :

Research studies on various feedback treatments in microteaching were conducted so far and various reports on the relative effectiveness were observed. Borg (1970), Griffiths (1972), Perrott, et al. (1975), Knaupp (1970), Davis (1971) supported the effectiveness of self feedback through videotape, whereas Brown (1975), Morse (1970), McIntyre (1971), Claus (1969), and Brown and Gibles (1974) gave much importance on the supervisory feedback with or without audio/videotape.

Borg, et al. (1970) used self feedback through videotape during their minicourse development taking in-service teachers as their subjects. Their study revealed that self feedback through videotape gave an accessible and objective record of the teacher's behaviour. Perrott, et al. (1974, 1975 and 1976) also used self feedback with videotape during feedback treatments in their studies of 'self-instructional microteaching course on effective questioning'. Shively, et al. (1970), Ward (1970), and Turney, et al. (1973) found in their studies on the relative effectiveness of audiotape during feedback treatment. Ward (1970) compared the effectiveness of four kinds of feedback treatments

on the acquisition of questioning skills. Four groups of in-service elementary school teachers evaluated their performances by (i) self-analysis through videotape, (ii) self-analysis through audiotape, (iii) a combination of self-videotape and model videotapes, (iv) reflective evaluation without equipment. The largest mean difference in the number of probing questions asked by the teacher between pre and post test was found in the audiotape group. In contrast to this reported study, the teachers under self-analysis through audiotape feedback in the present study obtained the gain scores on general teaching competence from pretest to post test/retention test which were equally significant with that of other two sources of feedback having supervisory with/without audiotape.

Feedback predominately on verbal-skills might be effectively mediated by audiotape, while feedback of such skills as non-verbal cueing, reinforcement, and variability in stimulus variation would obviously necessiate the use of other feedback provisions like supervisor, videotape, CCTV, etc. This was also confirmed by Turney, et al. (1973).

A number of studies revealed that the supervisory feedback was equally effective to other sources of feedback in preservice teachers' training programme. A study of Harrington (1970) was cited to indicate the relative effectiveness of feedback treatments of self-critique, peer student teacher, instructor, and supervisor. His study indicated that these various feedback treatments were equally effective on the

development of teacher competence. The similar findings were also revealed with respect to the present study on the three sources of feedback : self-analysis through audiotape feedback, supervisory feedback, and supervisory-cum-audiotape feedback.

Though a very limited study was undertaken by some researchers in India even then NCERT took up a major role through a National Project on microteaching (Das, et al. 1976 and 1977). During the two phases total seven studies were reported by the participating researchers on the effectiveness of varying sources of feedback. Mostly they had taken supervisory feedback and peer student teacher feedback as the variables in their standard microteaching and modified microteaching techniques. Except one study, the results of all other studies indicated that no significant mean differences on the development of general teaching competence were sustained among the groups of student teachers under the varying sources of feedback. The other one study (Paintal, 1976) which was undertaken taking the female student teacherss as the subjects, yielded that supervisory feedback was absolutely necessary and found to be more significant in achieving the gain scores on general teaching competence than that of peer student teacher. But, Sharma (1976) referred the similar results as that of the National Project in his doctoral study. His conclusion was that the student teachers under supervisory feedback ~~were~~ equally ~~effective~~ achieved the gain scores on the components of stimulus variation to that of the student teachers under peer feedback. The present project yielded a similar findings on the effectiveness of varying sources of feedback with self-

analysis through audiotape, supervisory feedback and supervisory-cum-audiotape feedback.

The reactions of the teachers under microteaching were discussed previously. All the teachers in the group of self-analysis through audiotape reacted unfavourably towards their very feedback treatements for the acquisition of teaching skills through microteaching. They even reacted in the favour of certain feedback either supervisory with or without tape. However, some related studies were referred to strengthen their views towards the superiority of supervisory with/without audiotape feedback.

McDonald (1973) reported an experiment of McDonald and Allen (1967) in which the role of skilled-supervisor was demonstrated. Four experimental treatments were used to compare the different forms of feedback : (i) self-viewing of one's videotaped performance, rating it on very general characteristics; (ii) self-viewing, rating the performance on the frequency of rewarding behaviours; (iii) viewing one's performance with an experimentor giving positive reinforcements in each and every situations along with the desired behaviour which appeared on the videotape projection; and (iv) viewing one's performance with an experimentor reinforcing both the desired responses, and noted instances where the desired responses were to be given. In the present study the self-analysis through audiotape feedback was a combination of first and second feedback treatments, whereas the third and fourth treatments : supervisory assistance through

experimentor with videotape projection, and supervisory assistance through experimentor only were the similar sources of feedback. Their study envisaged thatthe third and fourth treatments i.e. supervisory assistance through experimentor with videotape projection, and supervisory assistance through experimentor only produced significantly more behavioural changes of the teacher. Moreover, the fourth feedback treatment was significantly better in giving feedback for the modification of teacher behaviour than the third. The experimentor acted as supervisor in both the studies. In contrast to their studies, the treatments in microteaching groups under varying sources of feedback were equally effective on the development of general teaching competence having training more positive reactions in favour of supervisor with or without audiotape feedback.

Borg, et al.(1970) pointed out the supervisory advantages stating that most of the microteaching research programmes emphasised the increasing occurances of skilled-behaviours. They suggested that trained supervisor could assess the appropriate use of a skill and diagnose the reasons for failure in individual cases. In another study,where supervisory behaviour was clearly specified, the relative effectiveness of supervision appeared to be more highly related to the situation than to the supervisory behaviour per se.Claus (1969) reported that out of four experimental groups having various feedback treatments : supervisor cueing during the presentation of the model and replay of microlesson; supervisor cueing only during presentation of the model; supervisor cueing only during replay

of microlesson; and no supervision, the presentation of the model accompanied by cueing was the most effective treatment. Joyce (1967) found that supervisory feedback could be effective only if the supervisor needed extensive training for various skills of constructive feedback.

However, these above studies were discussed in favour of supervisory feedback with or without audiotape. Though this study envisaged the equal effectiveness of various feedback treatments even then it is better to adopt the supervisory feedback without audiotape in microteaching technique for the in-service teachers' training programme particularly in school situations.

4.2.2. Conclusions Related to the Effect of Varying Sources of Feedback :

From the above discussions related to the effect of varying sources of feedback treatments pertaining to the second objective and it's formulated two hypotheses, H_2 and H_3, the following conclusions were emerged.

(i) The in-service teachers trained through microteaching for skill acquisition under supervisory-cum-audiotape feedback did not differ significantly from that of the teachers trained through self-analysis through audiotape 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 microteaching for skill acquisition under supervisory feedback did not differ significantly from that of the teachers under self-analysis through audiotape 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 audiotape 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 microteaching 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 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 of post test performances.

4.3. EFFECT OF ACQUISITION OF THE FIVE TEACHING SKILLS :

The participating in-service teachers practised the five teaching skills through microteaching under various feedback treatments. Those skills were probing questioning, explaining, illustrating with examples, stimulus variation, and reinforcement. The effect of the five skills were assessed through their gains in summated scores from general teaching competence on the development of specific behavioural pattern. The first two objectives were formulated and examined on a global development of general teaching competence, whereas a separate third objective was considered to study the effect of training of the five skills on the ability to use those skills in macrolesson. Moreover, teaching skills related to the specific behaviour influenced the teaching-learning process and the teachers possessed a large repertoire of strategies and tactics. To test the confirmity about the impact of the five teaching skills on

this process and in possessing the teaching strategies and techniques for classroom performances this objective was undertaken for thorough reading. To fulfil the objective two hypotheses H_4 and H_5 were formulated. These hypotheses were in terms of gain in summated scores specific to the five teaching skills of general teaching competence at post test over pretest (S_1), at retention test over pretest (S_2) and at retention test over post test (S_3). The effectiveness of micro-teaching technique under varying sources feedback over integrated skill-based traditional training on the development of teaching competence pertaining to the five specific skills was the fourth hypothesis. The fifth hypothesis pertaining to the study of relative effectiveness of microteaching treatments was the non-existence of significant differences among the groups using self-analysis through audiotape, supervisory feedback, and supervisory-cum-audiotape feedback.

4.3.1. Discussion of Hypotheses H_4 and H_5 :

Hypothesis H_4 :

Through the various statistical measures : one-factor ANOVA, Scheffe' method, and Wilcoxon test the hypothesis H_4 was put to test the tenability of its alternate characteristics. The results revealed that this hypothesis was accepted at the gains in summated scores on the five skills of the post test over pretest and of the retention test over pretest, whereas the same

was rejected at the gain in summated scores of the retention test over post test. Hence, the teachers under microteaching group using any one of three feedback treatments were significantly higher on the gain in summated scores on the five teaching skills at the post test/retention test over pretest than that of the teachers under skill-based traditional practice teaching even with the 'filler' task. But the same teachers under the microteaching treatment were equally effective on the gain in summated scores of the five teaching skills at retention test over post test with that of teachers under skill-based traditional practice teaching.

The hypothesis H_4 was tested on the data collected on the summated scores, specific to the five skills of general teaching competence. The effectiveness of the contrasting groups of 'E_1' with 'F', 'E_2' with 'F', and 'E_3' with 'F' were evaluated through parametric and non-parametric measures. The BGTC Schedule was a measuring device to measure the criterion variable but specific to the summated scores on the five skills under consideration. The other non-specific sixteen skills were not taken into consideration for these hypotheses. However, this hypothesis may be discussed in this context in relation to the first Hypothesis H_1 where the assessment of general teaching competence were completed taking all the twenty one skills (both five specific and sixteen non-specific) in a global manner. The results of the first hypothesis, H_1 revealed that the ~~teachers~~ treatments under self-analysis through audiotape feedback were equally

effective on the gain in scores on the general teaching competence to that of the ~~teachers under the~~ 'filler' group having skill-based traditional practice teaching. But after testing the hypothesis H_4 the superiority of teachers' achievement on the gain in summated scores on the five skills under microteaching technique using self-analysis through audiotape feedback over the treatments in the 'filler' group were sustained. The only five skills which were practised during experimentation were considered in macro-situation. Hence, this fluctuation of the results of both the hypotheses was only due to the effect of non-specific sixteen skills on the general teaching competence.

To avoid the Hawthorne effect the teachers in the 'filler' group were treated the equal treatment on orientation, modelling of the five teaching skills analytically both in perceptual and symbolic manner. Even during practice of those teaching skills the teachers in this 'filler' group practised the same in an integrated skill-based traditional practice teaching where the supervisor gave the skill-based feedback to the teacher under practice. But, the analytical approach in skill training was lacking in the skill-based traditional training rather an integration of teaching skills was sustained. Hence, the effectiveness of microteaching over the treatments in 'filler' group on the development of gain in summated scores of general teaching competence was due to the effect of analytical approach in microteaching, skill-based practice, teach-reteach approach,

proper modelling, provision of dynamic feedback and objective supervision, cybernetic approach in behavioural pattern during acquisition of a skill, and easier to integrate the five teaching skills; rather a synthetical approach, a large class having a number of complexities, other intervening variables and biases, non-specific teaching skills in addition to the five skills, no provision of reteach, absence of analytical approach in feedback treatments, dual role of teacher in developing his competence simultaneously with pupils' learning, and too much content-based instead of skill-based approach. Under these considerations and underlying academical and psychological principles the micro-teaching technique was highly effective for the acquisition of teaching skills under the varying sources of feedback than that of integrated skill-based traditional practice teaching even if some special measures were given to the traditional training.

On the development of general teaching competence discussed in hypothesis H_1 and on the development of teaching competence pertaining to the five teaching skills for this hypothesis H_4 the findings revealed that the transfer of teaching competence was highly effective from initial to final measures i.e. from pretest to post test. Even in the 'filler' group the significant mean differences of the summated scores were sustained from pretest to post test measures. This inferences revealed that the acquisition of skills either through micro-teaching or through integrated approach in skill-based traditional training had a definite impact on the development

of general teaching competence and that too in changing and refining the teacher behaviour. Therefore it was concluded that if the microteaching technique was not possible in any situation in any school the acquisition of teaching skills may be adopted through an integrated approach in skill-based traditional training.

The changes in summated scores on the five skills under consideration from post test to retention test after a month gap were not significantly different. Even the mean gain in summated scores on the five skills from post test to retention test were not also different significantly between the three contrasting groups of 'E_1' with 'F', 'E_2' with 'F' and 'E_3' with 'F'. Hence, the teachers might have reached the performances in plateau in their patterns of behaviours. The cumulative effect from post test to retention test after a month of normal teaching did not show any significant impact on the change in behavioural pattern. Rather, the teachers under microteaching were in consistency in their behavioural patterns and competency in teaching with the teachers in the 'filler' group of skill-based traditional practices. A detailed discussion for this inferential statements was given during the discussion of first hypothesis.

During the study only five teaching skills were the criterion variables for the acquisitions. From pretest to post test measures on the general teaching competence and on the teaching competence pertaining to specific five skills the results indicated that after the specific skill practice the acquired behaviour gave a significant impact on the subsequent classroom

performances in normal lesson. Moreover the teachers under microteaching treatments exhibited higher gain in summated scores on the five skills than that of 'filler' group. If only five skills gave such favourable impact on the macrolessons for the development of general teaching competence then more number of teaching skills in addition to these five in accordance with the Baroda General Teaching Competence Schedule may be undertaken. The tenability of the first hypothesis under any sources of feedback treatments may be strengthened more due to the addition of more number of skills.

On the whole, the commitment to the teachers' analytical reflections on their teaching and an awareness of the hypothetical status of the specific five teaching skills might influence the consistent tendency to learn towards the effective teaching.

Hypothesis H_5 :

Interpreting the results of hypothesis H_4 , it was clearly stated that on the development of teaching competence pertaining to the five skills, all the microteaching groups were highly effective to that of 'filler' group. A further extension of inferences in testing the hypothesis H_5 was existed. That, there was no significant differences on the gains in summated scores on the five skills within the microteaching groups under varying sources of feedback either self-analysis through audiotape feedback, supervisory feedback, or supervisory-cum-audiotape feedback. Hence, the tenability of null hypothesis

were sustained at gains in summated scores of post test/ retention test over pretest/post test measures.

The change in behavioural pattern was mostly affected by the acquisition of the five teaching skills. The teacher discriminated the activities in which he was engaged in teaching-learning process. After acquiring those teaching skills for developing the teaching competence in accordance with their components and sub-components he proceeded to integrate those in macro-situation. The relative effectiveness of varying sources of feedback did not show any differential impact on the teachers of microteaching groups on the development of summated scores on the five skills. Hence, it was highly desirable and also economical to use supervisory feedback instead of costly gadgets in microteaching particularly in Indian school conditions.

By consciously practising one skill, instead of just the general practice of teaching, the teacher had a greater chance of mastering that skill. The skills gained through this process under varying sources of feedback became the teaching tools to be rationally applied. In other words, the in-service teachers in microteaching experience acquired a greater number of selected teaching behaviours and alternate teaching patterns on probing question, explaining, illustrating with examples, stimulus variation, and reinforcement. These behavioural patterns were transfered effectively to the normal classroom performances.

Finally, these five teaching skills which were identified and the materials developed for the preservice teachers on the development of general teaching competence were also suitable for the in-service teachers.

The most of the teachers in three groups reacted for separate microteaching course on each component of probing questioning:prompting, seeking further information, refocussing, increasing critical awareness, and redirection. These components, if practised separately as per the Borg's mini-course format or Perrott's self-instructional microteaching course, may affect in developing the discrete behavioural patterns of the teacher. The teachers advocated for some changes in the approach of practice on redirection and increasing critical awareness and giving importance on prompting. On explaining a concept the teacher during explanation may induce the related facts and other concepts, coordinate these with the present one, enquire the pupils' achievement from time to time on the particular concept and make the pupils away from boredom, passivity and one-sided activity. All the participating teachers in microteaching reacted favourably on the five teaching skills and were interested for more skills for acquisition. But they reacted unfavourably towards self-analysis through audiotape feedback for the development of teaching competence on non-verbal aspects of stimulus variation and reinforcement. However, the acquisition of teaching skills affect significantly on the development of general teaching competence, refined behaviour,

and enriched pupil learning both for talented and poor achievers.

Studies Related to Hypotheses H_4 and H_5 on Skill Acquisition :

While searching for evidence in research literature to support the above views, it was found that the studies which were directly related to these five teaching skills either in-service or preservice programme were not easily available. However, similar studies either from in-service or preservice programme, considering any teaching skills for competency development were discussed in greater details.

Taking preservice teachers as the subjects in a simulated condition Passi (1976), Lalithamma (1976), and Joshi (1977) developed the instructional materials of the following teaching skills. They infered that microteaching was an effective technique than those of the teaching skills developed through the traditional practice teaching or considering one skill at a time. Passi developed the instructional materials for skill of introducing lesson, achieving closure, fluency in questioning, probing questioning and reinforcement; Lalithamma for four skills : introducing pupil participation, explaining, using blackboard writing, and instructional objectives; whereas Joshi prepared the materials for the skills of stimulus variation, illustrating with examples, silence and non-verbal cues and recognising attending behaviour. Out of these skills only five were considered for the present study taking in-service teachers in real conditions for the

acquisition. For the development of teaching competence all the five skills were also undertaken ~~as~~ in the context of summated scores without considering one skill at a time.

Saunders, et al. (1975) conducted several experiments to evaluate alternative methods for training preservice teachers in questioning skills. One of the purposes of this study was to determine whether higher cognitive questioning would be effective for use in the training of preservice teacher candidates. Another purpose of this study was to determine the effects of varying the Minicourse format in order to increase its adaptability to existing preservice programmes. The peer micro-teaching group and observation group of having classroom observation experiences received the same minicourse modelled instruction, whereas another group received identical instruction as per the minicourse entirely through traditional lecture-discussion method. Comparisons of pre- and post training video-tapes of teaching performance revealed that regular and peer microteaching produced the most consistent and substantial gains in the use of questioning skills. The observation and lecture-discussion treatments were less effective. Moreover the study suggested that materials developed for in-service use, were effective in preservice skill acquisition programme when accompanied by school-based or peer microteaching. In contrast to this study, the present study dealt with in-service teachers from secondary schools to evaluate alternative feedback treatments for acquisition of five teaching skills other than minicourse

format. These five skills were developed before for preservice teachers but their adaptability and feasibility were tested in the present study for in-service teachers. The only similarity in finding of these two studies revealed that from comparisons of pre- and post training performances the microteaching groups produced the most consistent and substantial gains.

Two studies with the same objectives on the relationship between microteaching and student teacher classroom performance were referred, one by Copeland and Walter (1973) and other by Copeland (1975) alone. Over the two assumptions both the studies were undertaken : (i) the microteaching increased the probability of target skills which were acquired rapidly and with a high degree of efficiency, (ii) microteaching was an effective method of increasing the range of behaviours employed by the teacher in the classroom after completion of training. Both the studies were limited to questioning skills of higher order, probing and divergent questions (exploratory student responses) which constituted only one dimension of teacher classroom performance. After interpretation of results of the former study of Copeland and Walter, the results indicated that the microteaching mode of laboratory skill training did not have a significant effect on student teacher performance in classrooms. But this former study did not warrant firm conclusions concerning the effects of microteaching training on classroom performances. But the latter study showed a greater

promise about the following results. The two-way analysis of variance and Fisher's test were employed for statistical comparison of the rates of exhibition of the target skills in the classroom after the close of training. The results of the study revealed that the treatments under microteaching technique had no significant relationship with the subsequent classroom performances of student teachers. But upon completion of the microteaching programme when tested in the microteaching laboratory, the experimental group exhibited a significantly higher mean ratio of occurrence of the target skills than did the control group.

Young and Young (1969) attempted to test the effect of microteaching on subsequent classroom performances and found that participants in a microteaching experience acquired a greater number of selected teaching behaviours and alternate teaching patterns than those who did not participate in such an experience. Raymond (1973) reported from the study of "the acquisition of non-verbal behaviours by preservice science teachers and their application during student teaching" that teaching skills attained during the microteaching sessions were included within a repertoire of behaviours exhibited by secondary science student teachers. The student teacher in the experimental group acquired the teaching skill of non-verbal ~~ex~~ cues and use of silence. After the study was undertaken the teachers in this group differed significantly in their classroom behaviour from the control group. It was concluded therefore, that the number

of positive, non-verbal teacher behaviour and initiated interactions correlated significantly with the students' perception of teacher effectiveness of student teachers in this study.

Both the above studies along with the Saunders' study were favourable with respect to subsequent classroom performances after microteaching training considering some specific teaching skills. The present study indicated the same approach of emphasising the specific five teaching skills during microteaching and a favourable reflection on subsequent classroom performance was also exhibited.

In contrast to these related studies some other studies which were mostly on the in-service training programme either in microteaching or in minicourses were taken up for discussion on the relationship of the acquisition of questioning skills and the development of teacher behaviour, Borg with his associates (1970) focussed a major research and development effort in developing and/or modifying specific classroom skills and behavioural patterns required for effective teaching. They developed the in-service training courses, like, 'minicourses' which were of self-instructional packages on questioning skills. Reducing teacher talk and enhancing the pupil participation, increasing the teachers' use of probing techniques on prompting, further clarification and refocussing, reducing the negative teacher behaviours and training the positive aspects, and

attempting to use higher cognitive questions were the main contributions of practising the Minicourse-1. There were considerable evidences that these Minicourses-1 in addition to other Minicourses 4, 8, 9, 12 etc. brought about significant changes in the classroom skills of in-service teachers.

Perrott, et al.(1970, and 1972) reported in their initial studies that microteaching was an effective tool in improving the teaching skills of preservice trainees and that self-evaluative instruments played a more important role than the tutors in this improvement. Again they took some projects on in-service teachers on the development of effective questioning through minicourse format. One of the findings of their results between the lessons videotaped in each teacher's classroom before and after completing the course marked ≠ significant improvement in questioning skills. These skills learnt through microteaching were effectively transfered to the classroom performances (Perrott, et al. 1975). The present study revealed a similar findings on the development of teaching competence befofe and after the skills' acquisition.

Galassi, et al.(1974) studied the use of varying sources of modelling to train the in-service teachers in questioning skills on the minicourse format. He concluded that teachers who participated in Minicourse-9, regardless of course version or grade level taught, learned to ask a higher percentage of thought questions in class discussions than the teachers, not participated

in the course. One of the significant findings was that the changes in increasing in frequency of higher cognitive responses and long responses in student behaviour were produced by the experimental treatment.

Other than the minicourse adoption, Ward (1970) studied the acquisition of teaching skills on varying sources of feedback treatments over four groups of in-service elementary school teachers. The largest mean difference in the number of probing questions asked by the teacher between pre- and post test was found in audiotape group.

The studies referred in the above paragraphs were on the development of in-service teachers' behavioural pattern and were specifically on the acquisitions of questioning skills. Moreover, this study was dealt with other five teaching skills in addition to this probing questioning but not in the minicourse format.

In Indian context Thresiamma (1975) studied the skills of recognising attending behaviour and teacher liveliness on the development of skill ~~development~~ which was found to be satisfactory for the in-service teachers. Bhattacharya (1974) also studied the relationship between the effectiveness of microteaching and traditional practice teaching of in-service teachers ~~but~~ in polytechnic training institute. More changes in the expected directions were produced in the indirect behaviour of micro-teaching group than the traditional group.

The present study showed a great premise in relation to these studies referred on the development of teaching competence, specific to the five teaching skills and that too a modified teacher behaviour. Further the varying treatments in sources of feedback either self-analysis through audiotape, supervisory feedback or supervisory-cum-audiotape were equally effective to each other on the development of teaching competence pertaining to the summated scores of the five teaching skills in macro-situation.

4.3.2. Conclusions Related to Summated Scores on the Five Teaching Skills :

From the discussions on the results of hypotheses H_4 and H_5 with the studies related to the effectiveness of microteaching upon the development of summated scores on the five teaching skills the following conclusions pertaining to the third objective were reported.

(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 poest test/retention test over pretest.

(i) The treatments in microteaching for the acquisition of teaching skills under varying sources of feedback were equally effective to that of integrated skill-based traditional practice teaching on the gain 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, supervisory feedback and supervisory-cum-audiotape feedback were equally effective in summated scores on the five 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 microteaching 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 macrolesson 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.

4.4. TEACHERS' ATTITUDES TOWARDS TEACHING AND REACTIONS TOWARDS MICROTEACHING :

4.4.1. Discussion of Hypotheses H_6 and H_7 :

With an assumption on the development of positive attitudes towards teaching after the acquisition of teaching skills, the following two hypotheses were formulated and subjected to experimental verifications. The hypothesis H_6 was 'the gain in scores on teachers' attitudes towards teaching at the post test over pretest is significantly higher in case of micro-teaching 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. The last hypothesis H_7 which was in null characteristics was 'there is no significant differences in gain in scores in teachers' attitudes towards teaching at the post test over pretest in three microteaching groups using self-analysis through audio-tape, supervisory feedback and supervisory-cum-audiotape feedback'

These two hypotheses were tested through the same statistical measures, both parametric and non-parametric. Considering all the four groups simultaneously for analysing the significant mean differences on attitudes towards teaching through ANOVA, the analysis yielded a significant difference among the groups. Then it was followed by the Scheffe' method and Wilcoxon test for multiple comparison in which no significant mean differences among the three contrasting pairs - three microteaching groups with the 'filler' group were sustained. But, after analysing the mean differences through the same measures within the microteaching groups it was interesting to note that the mean gain scores on teachers' attitudes towards teaching using supervisory-cum-audiotape feedback were significantly higher than that of the teachers under self-analysis through audiotape feedback. Further, no differential impact on attitudes towards teaching were existed among the contrasting pairs of the teachers under self-analysis through audiotape feedback with that of supervisory feedback; and the teachers under supervisory-cum-audiotape feedback with that of supervisory feedback. Moreover, the significant mean differences of two measures i.e. pretest and post test of the same individual teacher were tested to reveal the effect of skill acquisition on attitude towards teaching. No significant differences from pretest to post test measures were sustained either in three microteaching groups or in the 'filler' group.

Hence, from the observations, the study revealed that the effect of acquisition of teaching skills did not show any differential impact on the teachers' attitudes towards teaching. Even, on the development of attitudes towards teaching the micro-teaching practices did not affect more on the teachers' attitudes in comparison with the 'filler' group having skill-based traditional training. The long range of teaching experiences of the in-service teachers might have given them the situation(s) for analysing the teaching profession, and thus, helped in having more realistic perception of the teaching activity. These perceptions would contribute for developing and stabilising some attitudes towards teaching. On the other hand, the given direction, the duration of the practice phase, and the contents of the treatment were neutral enough to produce significant changes in the stabilised attitudes of the experienced teachers.

Under the discussion of the results within microteaching groups, the teachers were much more convinced, reacted favourably, and positively affected analysing their own teaching situations through audiotape in the presence of supervisor. In addition to the supervisory assessment they themselves introspected from the reply of audiotape about the right approaches for the best development of teaching-learning situation. In this stage the dominance of supervisor was minimised because of the self-awareness on their past deeds from the tape during practice phase. Hence, both the feedback techniques gave positive effects

on the attitudes development rather than only the technique of self-analysis through audiotape.

Studies Related Attitude Towards Teaching :

For the purpose of supporting those findings and discussing those with the related ones, the following studies were referred.

Passi (1976) and Joshi (1977) in their studies found that there was no significant differences in change in preservice teachers' attitudes towards teaching after acquisition of teaching skills either through microteaching or through traditional training. Moreover, the studies under the National Project (Das, et al. 1976 and 1977) referred that (i) the effect of change from perceptual to audio modelling on the development of favourable attitudes towards teaching did not show any conclusive results; (ii) the results on the gain in scores on the preservice teachers' attitudes towards teaching due to varying sources of feedback (supervisory/audiotape/peer feedback) showed no significant changes, (iii) due to change in microteaching condition either from simulated to real or mixed, none of the teachers showed any significant changes on the attitudes towards teaching; (iv) the change in set of skills or even teaching units did not produce any significant change in the attitudes of the preservice teachers towards teaching.

As per the findings of the present study on the effect of teaching skills on attitudes towards teaching the two doctoral studies of Passi and Joshi indicated the same results about the non-effectiveness of skill acquisitions. But there was a deviation in the present study. That difference was the significant change in attitudes towards teaching on the skill acquisition through microteaching under supervisory-cum-audiotape feedback from that of self-analysis through audiotape feedback. This difference might be due to the subjects taken from preservice and in-service teachers or other factors as stated in earlier paragraph.

In a study of 'Microteaching : Its Effects on Student Attitudes in an Elementary Science Methods Course", conducted by Sparks and McCallon (1974), the same result as per the present study was indicated. That, the experimental group did not achieve a more favourable attitude towards teaching elementary science. The semantic differential, a tool for measuring attitude change towards teaching of science, included twenty bipolar adjectives like : clear-hazy, good-bad, stimulating-dull, etc., developed by Osgood was administered to 98 preservice teachers at the beginning and the end (like this present study, pretest-post test measure through the ATAI). Finally, the results and conclusion were indicated that there was a more positive change in the group taking a regular science methods course than in the group taking a science methods course having a microteaching experience.

Some mixed results were presented through a study conducted by Perrott, et al.(1974) referred by Perrott (1977) in her Publication 'Microteaching in Higher Education'. After self-instructional microteaching course on effective questioning to the in-service teachers attitude towards teaching were tested through a questionnaire 'Teacher Practices Inventory (Brown,1968)'. Both in pre-course and post-course measurement, the questionnaires were adopted providing an estimate of changes in general attitudes towards teaching over the period of the course. These were evaluated by using t-tests for correlated means. The results observed that there was no indication of change in response to items reflecting the proper degree of pupil-autonomy in problem solving, and only a trend in Brown's total score was existed for experimentalism. There was, however, a significant shift away from stress on formal class teaching. Teachers were also somewhat more positive about new educational media after the course. In general, the teachers' tendency was to support the use of audio-visual aids even before the course begins, and similarly this study showed a high degree of agreement with the objectives of the microteaching course. Hence, finally Perrott stated that the effect of microteaching was significant over some changes in in-service teachers' attitudes towards teaching. More acceptance of group work, more pupil participation and less emphasis on formal teaching were all detectable in post-course responses during their study on attitudes towards teaching.

However, this present study indicated no significant change in attitude of the in-service teachers towards teaching after acquisition of certain teaching skills either through microteaching or through skill-based traditional practice teaching.

4.4.2. Conclusions Related to Attitudes Twoards Teaching :

After the discussions on the results pertaining to hypotheses H_6 and H_7 of fourth objective the following conclusions were reported :

(i) The in-service teachers trained through microteachinng for the acqusition 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 nicroteaching for the acquisition of teaching skills under supervisory-cum-audiotape feedback were significantly more pronounced on the gain scores on the attitudes towards teaching than that of the teachers under self-analysis through audiotape feedback at the post test over pretest measures.

(iii) The treatments in microteaching for the acquisition of teaching skills either under self-analysis through audiotape feedback or supervisory-cum- audiotape feedback were equally effective with that of the treatments under supervisory feedback on the gain scores on the attitutdes towards teaching at the post test over pretest.

(iv) The in-service teachers trained either through microteaching or through skill-based traditional practice teachingg for the acquisition of teaching skills under varying sources of feedback did not differ significantly on the attitutdes towards teaching at their pretest and post test measures.

4.4.3. Discussion on the Teachers' Reactions Towards Microteaching :

All the in-service teachers in the microteaching treatment reacted favourably towards microteaching, the procedure adopted for acquisition of teaching skills under supervisory-cum-audiotape or supervisory feedback, analytical approach of skill acquisition, integration of teaching skills for macrolessons and so on. Perhaps all the three groups were very much motivated towards microteaching programme as it was evident from their reactions shown on the Self-Evaluation Proforma. Therefore, the only hunch was that all the three groups liked microteaching programme equally. This fact was duly supported by other empirical studies.

Perrott (1977) gave a favourable study on teachers' attitude towards the microteaching course. The self-instructional microteaching course having questioning skills contributed to professional advancement in use of skills, favourable transfer to the classroom teaching, encouraging pupils' readingss to respond, improving their initial response, to increase the level and amount of pupil participation and in eliminating habits which disrupt the flow of discussion. Likewise, the teachers under microteaching groups in this present study were in strong agreement about the effectiveness of skill-oriented microteaching technique for behavioural changes and competency in teaching.

McIntyre and Duthie (1972) studied reactions to microteaching and reported that a great majority of student teachers (n=128) found microteaching interesting and valuable. Allen (1973) reported a study comparing microteaching and traditional method of instruction for improving performance of a manipulative demonstration in industrial education. There was an evidence of an overall significant difference in favour of the microteaching group compared to the traditional method group. Studies conducted by Goodkind (1968); Fortune, Cooper and Allen (1967); Berliner (1969); Young and Young (1969); Wragg (1971); Ward (1969); Turney(1970); Perrott and Duthie (1970) showed the positive attitude of the trainees towards microteaching. Some results were reported by Abraham (1974); Passi (1976); Joshi (1977); Lalithamma (1976); Passi and Shah (1974) and Sharma (1976) in India regarding positive attitude of the trainees towards microteaching programme. Therefore, it can safely be said that the group of in-service teachers showed similar and positive attitudes towards microteaching programme. Hence, based upon the analysis and discussion of the results, conclusions were emerged. The in-service teachers under microteaching treatment showed favourable attitudes towards microteaching programme.

4.4.4. Conclusions Related to the Reactions towards Microteaching

The following conclusions on the reactions of in-service teachers ~~on~~ towards 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 micro-teaching 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 ~~by~~ any supervisory assistance during skill acquisitions through microteaching.

(v) The approach of integrating the 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, they 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.

After summing up all these results from this study briefly, it would be appropriate to state that microteaching course aiming at the acquisition of teachigg skills is a powerful instructional tool for extending a desired behavioural pattern for the in-service school teachers. It would meet the challenges in continuing professional education and is having a large repertoire of strategies and tactics to keep the teachers abreast of the knowledge and pedagogical explosions.