CHAPTER-V

SUMMARY, CONCLUSIONS, EDUCATIONAL IMPLICATIONS
AND SUGGESTIONS FOR FURTHER RESEARCH

The greatest need of today is that man in his race should reflect on the real purpose and value of human life and give a fresh orientation to his view of life based on such introspective reflection. Kothari Commission (1964-66) begins its report with the remarks that the destiny of India is being shaped in its classroom.

Hence, in order to improve the quality of education it is necessary to have a sound programme of teacher education. Irrespective of levels and types of education, Teachers play a pivotal role in the process of implementation of the policies, formulated to achieve the desired goal in the qualitative improvement of education. Rayans (2004) pointed out that in educational scenario, teachers act as a 'pivot' on which the entire process of education rest on. Teachers have been called nation builders in every period and in every society. Teacher themselves really are the key persons in developing good community. Sabu (2010) emphasized that in the present era drastic changes are required to meet the goals of education by increasing teacher competency. Thomson (2010) opined that
teacher should encourage such a classroom environment that is inviting respectful, supportive, inclusive and flexible among students. Singh (2006) stated that teachers are considered the most important resource for a school. Kukreti (2005) remarked that competent teachers possess higher mean scores on knowledge, creative and humanistic values than their incompetent counterparts. The Education Commission (1964-66) observed that of all the different factors which influence its quality of education and its contribution to national development, the quality, competence and character of teacher are undoubtedly the most significant.

Nand (2006) also emphasized that the strength and success of any educational institution depends primarily on the professional competence, self less devotion of teachers and the extent to which they know and love their subjects and pupils.

Sood (2003) felt the need of orientation of the teachers regarding child development. Savelsbergh (2002) pointed out that there is increasing awareness the skilled perception precedes and determines appropriate action in education.

Sodhi and Suri (2000) pointed out that the teachers were the leaders and shapers of the classroom and students freedom and give them responsibility.
Gupta (1977) focused that teaching competency is the more essential availability required for an effective and successful teacher.

Shrimati Hansben Mehta in her Presidential address on the occasion of the first conference of training colleges in India held at Baroda on 23rd to 25th November (1950) rightly remarked that the teacher occupies a pivotal position in all scheme of educational reconstruction.

Perlberg (1970) opined that the theoretical courses to which greatest attention is given at present in teacher education -are mainly verbal, abstract and sometimes even vague.

Buch and Yadav (1974) pointed out that much dissatisfaction has been shown about the training provided to the teacher.

Thus, the need to find out a proper solution for removing the defaults in the existing practice teaching programme was fulfilled and micro teaching arrived in the scene with a view to solve the varied problems.

The perusal of review of related literature provides a picture reflecting on micro teaching, multimedia and teaching competence. The review of related literature pertaining to the variables under investigation provides certain indication that may be briefly summed up as under:-
**Microteaching**


**Multimedia**

Teachers used different media (Dasgupta, 1988; Mehra, 1988; Mohanty, 1988; Sudama and Goel, 1988; Antonyswamy, 1989; Debi, 1989).

Teachers used broadcast programmes (Mishra, 1989; Chowdhry, 1990; Giri, 1990; Mohanty, 1990; Biswal, 1992; Harjal 1992)

Computer and Internet were used by teacher (Ajatha, 2002; Helonjoy, 2007; Mehra, 2007; Rajeskar and Vajapuri, 2008; addressed through research endeavours in different cultural settings. Moreover, no such coherent endeavour has been undertaken on prospective teachers of Haryana and hence the present study is a humble attempt to search an empirical database with certain hypotheses.

**Teaching Competence**

Teaching competence defined as adequacy for a task of required knowledge skills and abilities (Natrajan, 1984; Dass and Jangria, 1988; Singh, 1989; Basi, 1991; Chardenas, 2000; Sudha and Kumaraswamy, 2004; Veer, 2004) emphasized that teacher should possess teaching skills and competencies so that his task may be easy, useful and effective.

(Kukreti et al., 2005; Kali, 2006; Sabu, 2010) concluded that competent teachers possess higher mean scores on knowledge, creative and humanistic value than their incompetent counterparts.

**Teaching Skill**

Teaching skills has relationship with teaching competence (Brown, 1981; Rusbult and Farell, 1983; Chathley, 1984; Gandhi, 1992; Gor, 1992; Thukral and Madan, 2003; Singh, 2005).
Teaching skills promote better classroom environment (Kalan purkar, 1986; Dubey, 1989; Arockiam, 1990; Asija and Pratap, 1990; Gill, 1990; Singh, 1990; Luthan, 1995; Dweck, 1999; Filak et al. 2003; Reddy et al, 2009). Moreover, no such coherent endeavour has been undertaken on prospective teachers of Haryana and hence the present study is a humble attempt to search an empirical database with certain hypotheses.

So the present study has great significance as its main focus is on teaching competence. Present study will answer the questions how micro teaching and use of multimedia improve teaching competence. Study will emphasize the effect of micro teaching and use of multimedia in teaching competence. In a nutshell, present investigation will help the prospective teachers to improve their teaching competence and performing their job in a better way. Hence, it was thought worthwhile to undertake the problem for research titled

EFFECT OF MICRO TEACHING AND USE OF MULTIMEDIA ON TEACHING COMPETENCE OF PROSPECTIVE TEACHERS.

5.1 OBJECTIVES

The following objectives were undertaken:

- To study the effect of micro teaching skills on teaching competence of prospective teachers.
• To study the effect of microteaching on teaching competence of prospective teacher through skill of probing questioning.

• To study the effect of microteaching on teaching competence of prospective teacher through skill of pupils' participation.

• To study the effect of microteaching on teaching competence of prospective teacher through skill of reinforcement.

• To study the effect of microteaching on teaching competence of prospective teacher through skill of recognizing attending behaviour.

• To study the effect of microteaching on teaching competence of prospective teacher through skill of achieving closure.

• To study the effect of multimedia on teaching competence of prospective teachers.

• To study the effect of conventional method of teaching on teaching competence of prospective teachers.

• To study the interaction of Micro teaching, Multimedia and conventional method.
• To study the interaction of micro teaching and conventional method.
• To study the interaction of multimedia and conventional method.

5.2 HYPOTHESES

In order to fulfil the objectives of the study, the following hypotheses were formulated and tested.
• There will be no significant effect of microteaching skills on teaching competence of prospective teachers.
• There will be no significant effect of microteaching skill of probing questioning on teaching competence of prospective teachers.
• There will be no significant effect of microteaching skill of pupils' participation on teaching competence of prospective teachers.
• There will be no significant effect of microteaching skill of reinforcement on teaching competence of prospective teachers.
• There will be no significant effect of microteaching skill of recognizing attending behaviour on teaching competence of prospective teachers.
• There will be no significant effect of microteaching skill of achieving closure on teaching competence of prospective teachers.

• There will be no significant effect of multimedia on teaching competence of prospective teachers.

• There will be no significant effect of conventional method of teaching method on teaching competence of prospective teachers.

• There will be no significant interaction between micro teaching, multimedia and conventional method.

• There will be no significant interaction between micro teaching and conventional method.

• There will be no significant interaction between multimedia and conventional method.

5.3 DELIMITATIONS OF THE STUDY

The present study was delimited with respect to the following:

• The study was confined to the B.Ed. prospective teachers.

• The students of Mata Harki Devi College of Education for Women, Odhan, Jan Nayak Ch. Devi Lal College of Education, Sirsa, National College of Education, Sirsa
affiliated to Kurukshetra University, Kurukshetra were included in the sample.

- The study was confined only to five micro teaching skills.
  - Skill of probing questioning.
  - Skill of increasing pupils' participation.
  - Skill of reinforcement.
  - Skill of recognizing attending behaviour.
  - Skill of achieving closure.

The study was confined to use of slide projector, compact disc and over head projector.

5.4 OPERATIONAL DEFINITIONS

Effect

In this study effect refers to a particular treatment given to a subject to bring about to desired behavioural change. This change will be observed in Teaching Competence.

Micro Teaching

A method of teacher training whereby teacher trainers gain stimulated teaching experience with few students in small groups and employing audio and or video recording for playback and discussion.
Multimedia

Multimedia means more than two media of communication involved in a learning package.

Teaching Competence

Teaching competence means the ability to use knowledge, understanding and practical skills to perform effectively for instance at national standards required in employment. Teaching competence can be knowledge, attitudes skills, values or personal values, Teaching competency can be acquired through talent, experience or training.

Prospective Teachers

Prospective teachers refer to those who are studying in Bachelor of Education (B.Ed) Course.

5.5 METHODOLOGY

The purpose of the present study was to look into the effect of micro teaching and use of multimedia on teaching competence of prospective teachers.

5.5.1 UNIVERSE OF THE STUDY AND SAMPLE

Sampling is the essential feature in any research endeavours. Since it is not possible to cover the whole population in experimental studies, the researcher is to resort to sampling.
• **Universe**

The universe of the study is prospective teachers studying in education colleges situated in 21 districts in State of Haryana. Further the focus of the study was on prospective teachers studying in B.Ed. out of 21 districts one district namely Sirsa was selected on random basis.

• **The College sample**

The college sample was drawn from the representative education colleges. A list of affiliated colleges with Kurukshetra University, Kurukshetra was procured from B.Ed. prospectus and website of K.U.K. In order to get relevant information from colleges, the investigator researched website. Random sampling technique was used in choosing Sirsa District from Haryana. Random sampling technique was used for choosing three education colleges namely, Mata Harki Devi College of Education, Odhan (District Sirsa), J.C.D. College of Education, Sirsa, Lala Dheeramal Arora National College of Education, Sirsa and again random sampling technique was used for distribution of groups.

**5.5.2 RESEARCH METHOD**

The study was conducted through experimental method of research. An experiment is the process in which the experimenter manipulate one variable to study the effect of the
manipulation on another variable. The experimental method test the hypothesis concerning cause and effect relationship.

The method requires sample for conduct of study with certain research tools for conduct of the study. The description of tools and sampling is given hereunder:-

5.5.3 RESEARCH TOOLS

For collecting new unknown data required for any research problem, one may use various devices. For each and every type of research we need certain tools together facts or to explore new fields, which act to as means are called research tools. Different tools are suitable for collecting various finds of information for various purposes. The selection of suitable tools is of vital importance for successful research. The success of any research endeavour is largely dependent upon the tools which are used for the data collection. The following tools were selected and used by the investigator in the study.

In this study following tools were used by the investigator.

- Ravan' Standard Progressive Matrices (Intelligence test for making the three equal matched groups (A1, A2, A3).

- General Teaching Competence Scale (GTCS) of Dr. B.K. Passi and Dr. Mrs. Lalita (1977).
• Micro lesson plans for microteaching and lesson plans for use of multimedia were prepared by the investigator herself.
• Observation schedule for selected skills were used.
• Transparencies and slides were prepared by the investigator overhead projector and slide projector were used for this purpose.

5.5.4 FORMATION OF DESIGN

Stage I

First of all prospective teachers were selected on the basis of teaching subjects they have offered at their B.Ed. level. It was found 522 prospective teachers opted for teaching of social studies. The table given below indicated the number of 270 prospective teachers selected as sample at this stage.

Stage II

To achieve further homogeneity in the group efforts were made to equate the ninety prospective teachers referred to above, on the basis of intelligence.

In the present study pre-test, post-test, control group design was employed. The study involved two independent variables, namely, microteaching skill, use of multimedia. The dependent variable studied was teaching competence of prospective teachers in Social Studies.
Table 5.1

Showing the design of the study

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental Group A1</td>
</tr>
<tr>
<td></td>
<td>Equating the groups on the factors of intelligence and subject opted as teaching subject in B.Ed.</td>
</tr>
<tr>
<td>Pre-Test</td>
<td>Administration of Baroda General Teaching Competence Scale</td>
</tr>
<tr>
<td>Training</td>
<td>Orientation and training in Micro Teaching skills</td>
</tr>
<tr>
<td>Post-Test</td>
<td>Administration of Baroda General Teaching Competence Scale</td>
</tr>
</tbody>
</table>

The above table 5.1 shows the design of the study in which the different steps of the process of treatments are presented. There are three treatment groups – Experimental Group A1, Experimental Group A2 and Control group A3. In the first step, Baroda General Teaching Competence Scale was administered on 120 prospective teachers who constitute the sample of the study. In a micro lesson the number of the prospective teachers should be between 5 to 10. The experimental group A1 in the case of the present constitute of 40
prospective teachers hence it was divided into four groups. In order to develop teaching competence.

The experimental group A2 was exposed to use of Multimedia through Overhead Projector, Slide Project and Compact Disk. The control group A3 was exposed to conventional method of preparing of prospective teachers for classroom teachers. Distribution of total sample may be seen from the fig. 5.1.

**Figure 5.1**

**Distribution of Total Sample**
5.5.5 CONTROL OF VARIABLES

The study involved two independent variables, namely, microteaching skill, use of multimedia. The dependent variable studied was teaching competence of prospective teachers in Social Studies. In order to reduce the contamination and study the clear effect of variables certain controls were introduced. A brief explanation of these experimental controls is as follows:-

- Organismic Variables
- Stimulus Variables
- Response/Behavioural Variables

5.5.6 CONDUCTING THE EXPERIMENT

The experiment was conducted in three phases as presented in the following paragraphs.

Phase I – Administration of the Pre-test

After selecting the colleges for experiment the investigator fixed appointments and discussed the proposed instructional programme with the principals of colleges. Availability and favourable climate for research was the criteria for final selection of colleges. A meeting with principal and teacher educators helped in chalkling out the date and time schedules for the implementation of the programme. The investigator visited the selected prospective teachers and established a rapport with respective teachers. Before starting the treatment all the
prospective teachers selected in sample were given pre-test. This was the initial stage in which the General Teaching Competence Scale (GTCS) was administered on group A1, group A2 and group A3 before introducing any treatment.

**Phase-II Treatment.** In the treatment stage all the three groups were treated as given below.

**Group A1** was oriented through Microteaching skills.

**Group A2** Lesson plans delivered with the help of multimedia (O.H.P. & Slide Projector).

**Group A3** Unlike the other two groups, this was the control group. The treatment was given to this group as per the lesson plans prepared by using conventional method of teaching simultaneously with the other groups.

This treatment was maintained for thirty working days for one period of 36 minutes for each working day in each institution for each of the groups.

**Phase III Terminal Stage.** At this stage post-test was administered on group A1, group A2 and group A3 on the completion of the treatment. In this way the terminal behaviour of the sample was evaluated.

**5.5.7 FORMATION OF FACTORIAL DESIGN**

The major objective of the study was to explore relationship of micro teaching, multimedia and conventional method. In order
to study the effect of micro teaching on teaching competence, use of multimedia on teaching competence and conventional method on teaching competence of prospective teachers. 3x2 factorial design was formed and depicted in the table 5.2.

Table 5.2
Formation of Factorial Design

<table>
<thead>
<tr>
<th>Teaching Competence (B)</th>
<th>Treatment A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels</td>
<td>A1</td>
</tr>
<tr>
<td></td>
<td>40</td>
</tr>
<tr>
<td>Teaching Competence</td>
<td>A₁B₁</td>
</tr>
<tr>
<td>High Level=B₁</td>
<td></td>
</tr>
<tr>
<td>Teaching Competence</td>
<td>A₁B₂</td>
</tr>
<tr>
<td>Low Level=B₂</td>
<td></td>
</tr>
</tbody>
</table>

Treatment was considered as factor A. It included three groups of prospective teachers two experimental and one control group.

A2 – Experimental Group A2 through Multimedia.
A3 – Control Group A3 through Conventional Method.

Teaching competence was considered as factor B. It included two levels of teaching competence high and low. It may be seen from the fig. 5.2
N = 120

Method A1 (n=40)       Method A2 (n=40)       Method A3 (n=40)

B1 - High Teaching Competence Level       B2 - Low Teaching Competence Level

A2 – Experimental Group A2 through Multimedia.
A3 – Control Group A3 through Conventional Method.

Figure 5.2
Layout of Factorial Design 3x2
Treatment A
5.5.8 STATISTICAL ANALYSIS

Statistical procedures have been developed to simplify the large quantities of numerical data and thus to assist in the task of obtaining meaning from them. In this study the undermentioned statistical treatments were applied to give numerical description and meaningful shape to the obtained data:

For analysis of data in the present study following statistical techniques were used:

- Mean
- Measure of variability
- Significance of difference between two means
- Analysis of variance (ANOVA)
- t-test & F-test
- Factorial design 3x2

5.6 ANALYSIS AND INTERPRETATION OF THE DATA

- The mean values of pre-test and post-test of experimental group-A1 on teaching competence of prospective teachers are 45.37 and 117.72 with SDs of 10.65 and 10.73 respectively. The 't' ratio between the pre-test and post-test comes out to be 30.83 which is significant at 0.01 level.
• The mean values of $C^{1SP}$ & $C^{2SP}$ of experimental group-A on teaching competence of prospective teachers are 18.65 and 51.07 with SDs of 2.52 and 1.61 respectively. The 't' ratio between the $C^{1SP}$ & $C^{2SP}$ comes out to be 92.00 which is significant at 0.01 level of significance.

• The mean values of $C^{1SP}$ & $C^{2SP}$ of experimental group-A1 on teaching competence of prospective teachers are 18.32 and 51.47 with SDs of 1.43 and 2.57 respectively. The 't' ratio between the $C^{1SP}$ & $C^{2SP}$ comes out to be 72.17 which is significant at 0.01 level of significance.

• The mean values of $C^{1SP}$ & $C^{2SP}$ of experimental group-A1 on teaching competence of prospective teachers are 21.17 and 62.30 with SDs of 3.20 and 2.69 respectively. The 't' ratio between the $C^{1SP}$ & $C^{2SP}$ comes out to be 77.05 which is significant at 0.01 level of significance.

• The mean values of $C^{1SP}$ & $C^{2SP}$ of experimental group-A1 on teaching competence of prospective teachers are 20.9 and 62.40 with SDs of 3.14 and 2.44 respectively. The 't' ratio between the $C^{1SP}$ & $C^{2SP}$ comes out to be 71.46 which is significant at 0.01 level of significance.

• The mean values of $C^{1SP}$ & $C^{2SP}$ of experimental group-A1 on teaching competence of prospective teachers are 14.62 and 40.95 with SDs of 1.64 and 1.86 respectively. The 't'
ratio between the $C_{1SP}^* \& C_{2SP}^*$ comes out to be 82.00 which is significant at 0.01 level of significance.

- The mean values of pre-test and post-test of experimental group-A2 on teaching competence of prospective teachers are 43.57 and 132.30 with SDs of 10.73 and 6.48 respectively. The 't' ratio between the pre-test and post-test comes out to be 41.49 which is significant at the level of 0.01.

- The mean values of pre-test and post-test of control group-A3 on teaching competence of prospective teachers are 44.27 and 51.52 with SDs of 10.80 and 11.80 respectively. The 't' ratio between the pre-test and post-test comes out to be 0.58 which is not significant at 0.05 level of significance.

- The FA value 131.49 with df 2,114 for the difference between treatment is higher than the table value even at .01 level of significance. It may be stated that the difference between three groups is highly significant. The FB value 28.30 with 2,114 for the competence levels is significant at 0.01 level.

- The FAB value 11.96 with df 114 for interaction effect is highly significant because the F value is greater than table value even at .01 level of significant. It may be
interpreted that the joint effect of method of teaching and teaching competence on criterion variable is significant.

- The FA value 565.2 with df 1,76 for the difference between treatment Micro Teaching and Conventional method is higher than the table value even at 0.01 level of significance. It may be stated that the difference between three group A1 and A3 is highly significant. The FB value 69.34 with df 1,76 for teaching competence level is significant at 0.01 level.

- The FAB value 17.6 for interaction effect of treatment and teaching competence level is highly significant because the 'F' value is greater than table value even at 0.01 level of significant. It may be interpreted that the joint effect of treatment and teaching competence on criterion variable is significant.

- The FA value 565.2 with df 1,76 for the difference between treatment Multimedia and Conventional method is higher than the table value even at 0.01 level of significance. It may be stated that the difference between three group A2 and A3 is highly significant. The FB value 75.9 with df 1,76 for teaching competence level is significant at 0.01 level.
• The FAB value 12.42 for interaction effect of treatment and teaching competence level is highly significant because the 'F' value is greater than table value even at 0.01 level of significant. It may be interpreted that the joint effect of treatment and teaching competence on criterion variable is significant.

• The 't' value of 24.98 between the difference of means of the groups under Micro Teaching and Conventional method was found to be significant at 0.01 level. The main effect of Micro Teaching and Conventional method may be due to interaction due to treatment. The mean of the two groups given in the table supported the result that group under Micro Teaching achieved higher competence level than the group under Conventional method. The t-value 39.89 between the difference of mean groups under multimedia and Conventional method was found to be significant at 0.01 level of significant. The main effect of Multimedia and Conventional method may be due to treatment. The mean of two groups given in the table supported the result that the group under multimedia achieved higher teaching competence level than the group under Conventional method.
• The 't' value 14.292 between the difference of mean groups under Multimedia and Micro Teaching was found to be significant at 0.01 level of significant. The main effect of Multimedia and Micro Teaching may be due to treatment. The mean of two groups given in the table supported the result that the group under Multimedia achieved higher teaching competence level than the group under Micro Teaching.

On the basis of the result of the study as reported in proceeding section testing of hypotheses was made as reported under:-

i As the effect of micro teaching on teaching competence of prospective teachers comes out significant in all the analyses, the hypothesis:

“There will be no significant effect of micro teaching skills on teaching competence of prospective teachers”.

was rejected. This shows that there is significant relationship between micro teaching and teaching competence of prospective teachers with the use of micro teaching prospective teachers can improve their teaching competence.
• As the effect of skill probing questioning on teaching competence of prospective teachers is significant in all the analyses, hence the hypothesis:

“There will be no significant effect of micro teaching skill of probing questioning on teaching competence of prospective teachers”.

was rejected. With the use of probing questioning skill, prospective teachers can improve their teaching competence level.

• As the effect of skill of pupils’ participation on teaching competence of prospective teachers is significant and hence the hypothesis:

“There will be no significant effect of micro teaching skill of pupils’ participation on teaching competence of prospective teachers”.

stands rejected. The results of the study revealed that with the help of skill of pupils’ participation can be improved.

• As the effect of skill achieving closure on teaching competence of prospective teachers is significant in all the analyses, hence the hypothesis:
“There will be no significant effect of micro teaching skill of achieving closure on teaching competence of prospective teachers”.

was rejected. The result reveals that with the help of skill of achieving closure, prospective teachers can improve their teaching competence.

- There is significant difference between the main score of C1 and C2 in the skill of reinforcement. Hence the hypothesis:

  “There will be no significant effect of micro teaching skill of reinforcement on teaching competence of prospective teachers”.

was rejected. Thus, the skill of reinforcement plays a pivotal role in teaching competence.

- There was significant difference between the main score of C1 and C2 in the skill of recognizing attending behaviour. Hence the hypothesis:

  “There will be no significant effect of micro teaching skill of recognizing attending behaviour on teaching competence of prospective teachers”.

was rejected. The results of the study revealed that with the help of skill of recognizing attending behaviour can be improved.
• The present study shows that there is significant relationship between multimedia and teaching competence. There is significant difference between mean score of pre-test and post-test of prospective teachers, hence the hypothesis:

“There will be no significant effect of multimedia on teaching competence of prospective teachers”.

was rejected. The result reveals that by the use of multimedia prospective teachers can improve their teaching competence level.

• The present study shows that there is no significant relationship between conventional method and teaching competence, hence the hypothesis:

“There will be no significant effect of conventional method on teaching competence of prospective teachers”.

was accepted.

• The interaction effect of micro teaching, multimedia, conventional method and two level of teaching competence is significant. Hence the hypothesis:

“There will be no significant interaction between micro teaching, multimedia and conventional method”.

was rejected. That multimedia was found to be the best method than micro teaching and conventional method.
• The interaction effect of micro teaching, conventional method and two level of teaching competence is significant. Hence the hypothesis:

“There will be no significant interaction between micro teaching and conventional method”.

was rejected. The result reveals that micro teaching was better than the conventional method.

• The interaction effect of multimedia, conventional method and two level of teaching competence is significant. Hence the hypothesis:

“There will be no significant interaction between multimedia and conventional method”.

was rejected. Multimedia system was found to be better than conventional method.

5.7 CONCLUSION

Thus following conclusions were drawn on the basis of the results of the study:

• As far as the general teaching competence of student-teachers of the experimental group-A by micro-teaching at pre-test stage and cost test stage the mean score is found significant.
• In the skill of probing questioning it was found that mean values of $C_1^s$ & $C_2^s$ of experimental group-A on teaching competence of prospective teachers are significant.

• It was found that in the skill of pupil's participation, the student-teachers progress from $C_1$ to $C_2$ in the three the experimental groups. The mean values of $C_1^s$ & $C_2^s$ of experimental group-A on teaching competence of prospective teachers are significant.

• It was found that in the skill of reinforcement, the student-teachers maintained progress from $C_1$ to $C_2$ in three the experimental groups. The mean values of $C_1^s$ & $C_2^s$ of experimental group-A on teaching competence of prospective teachers are significant.

• In the skill of recognizing attending behaviour it was found that of the student teacher maintained progress from $C_1$ to $C_2$ both componentwise and as a whole three the experimental groups. The mean values of $C_1^s$ & $C_2^s$ of experimental group-A on teaching competence of prospective teachers are significant.

• In the skill of achieving closure it was found that the student-teachers maintained progress from $C_1$ to $C_2$ both componentwise and as a whole in the three the experimental groups. The mean values of $C_1^s$ & $C_2^s$ of
experimental group-A on teaching competence of prospective teachers are significant.

- The mean values of pre-test and post-test of experimental group-B on teaching competence of prospective teachers are significant.
- The mean values of pre-test and post-test of control group-C on teaching competence of prospective teachers are significant.
- There is interaction between micro teaching, multimedia and conventional method and level of teaching competence.
- There is interaction between micro teaching, conventional method and level of teaching competence.
- There is interaction between multimedia, conventional method and level of teaching competence.

5.8 EDUCATIONAL IMPLICATIONS

The present study emphasized the prospective-teaching aspect in the programme of teacher preparation.

- The most important basis of present study is that it has accepted the analytical view of teaching. According to the present study, teaching consists of a number of teaching skills scientifically identified and on which there is more or less a general consensus. So present prospective
teaching programme should be restructured and be made skill oriented.

- Micro lessons were carried out in simulated conditions using the peer group as students. Self-feedback was provided by replaying micro lessons and observation schedules were used for feedback. This observation system is very much known to our teacher educators in our teacher education programme. It is, therefore, no difficult for our teacher-educators to develop competence in observing specific teaching skills. So teaching skills and general teaching competence should be developed with the help of multimedia.

- The use of transparencies and slides may be implied for making prospective-teaching need based and individualized. All the prospective-teachers are not of the same intellectual level. Some can gain competency easily, whereas others cannot gain the expected level of competence, even after regular teaching. The use of multimedia in simulated conditions of microteaching setting can prove to be an effective training technique for the latter group.

- It is found in the present study that the use of multimedia synchronized with microteaching skills in
simulated conditions is more effective than the traditional technique of prospective-teaching in developing teaching skills, prospective-teachers can be trained through microteaching approach, using multimedia, especially in simulation for the development of teaching skills.

- This solves many of the administrative problems faced by colleges of education in arranging for teaching practice in schools. This, however, does not mean that a teaching training programme should train prospective-teachers in a set of specific, but isolated teaching skills.

- The prospective-teachers should be given opportunity to integrate those skills in normal school conditions. With the training in simulated conditions the prospective-teachers develop the confidence to teach before they go to schools for teaching practice. When the school principals know about these efforts of the colleges of education they happily accommodate them in their schools. Thus this new approach provides one solution to re-establishing rapport between the secondary schools and colleges of education.

- Suitable use of multimedia in the form of transparencies and slides should be prepared for the remaining teaching skills. These materials should be developed on a large
scale and may be made available to prospective-teachers as the first exposure to skills in teaching. This should be undertaken by training institutions of the states, universities, and other national organizations. The training institutions should develop transparencies and slides depicting the use of different skills in the context of the Indian classroom.

• Implication of the present study can be thought of from a school teacher's point of view. When teachers are made conscious of their deficiencies in the teaching skills and further trained in those skills, there is going to be a long run effect in the general methods of teaching and improvement in the teaching learning process in the classroom.

• For this purpose workshops and seminars should be arranged as state and national levels. Even the schools in the same neighbourhood jointly may undertake the venture of improving the teaching skills of their own teachers.

• This indirectly speaks of the utility of multimedia transparencies and slides developed in the present study and the need for developing similar ones for other teaching skills and subjects identified so far.
• The study also has implications for in service training programme, where, perhaps, practice-teaching aspect is neglected. Teachers can be trained in various teaching skills through transparencies and slides when they meet in summer. With the help of transparencies and slides they can train themselves in practising and integrating those skills in normal classroom conditions.

5.9 SUGGESTIONS FOR FURTHER RESEARCH

Based on this research the following suggestions are made for further research.

• In the present study, sample taken was rather small. To make broader generalization large sample of prospective teaches can be carried out.

• Since the administrative difficulties did not permit validation of use of multimedia in the shape of transparencies and slides for each skill developed in the present study, on a separate sample revalidation of the transparencies and slides may be taken up for overcoming this limitation.

• The multimedia material may be developed and validated for other teaching skills identified.
• The validation of the prepared transparencies and slides can be done, synchronizing them with microteaching by bringing variations in the components of the latter.

• A follow up research is needed to find out to what extent the skills developed through multimedia in simulated conditions are sustained over a period of time in the colleges of education and in school teaching where the teachers join after their training.

• Similar study can be conducted while using transparencies, slides and audio-video tapes to inquire into the effect of multimedia on teaching competence.