



**“IMPACT OF MICRO-TEACHING ON THE TEACHING COMPETENCE OF PUPIL -  
TEACHERS – A COMPARATIVE STUDY”**

By

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**Abstract**

*The present study was aimed at studying the impact of micro-teaching on the teaching competence of pupil-teachers. For this purpose Descriptive Survey Method was used. The sample of 300 pupil – teachers were selected from 6 colleges where 150 were from Punjab and 150 from Himachal Pradesh. The investigator had to undertake the construction of a standardized, unbiased Questionnaire. The data were mainly analyzed in terms of mean, standard deviation & ‘t-test’ was used to find out the significant difference. Researcher found Micro-teaching helps in bringing desirable modification in the behaviour of pupil-teachers. There were exists no significant difference in the level of performance among male and female pupil-teachers. It would help in reducing the time normally taken in practice-teaching and would ensure better academic achievement on the part of the pupil-teachers.*

**Keywords:** - Micro-teaching, Pupil-teachers, Teaching competence, behavioural technology

Education is conceived as powerful agency, which is instructional in bring about the desired changes in the social cultural life of Nation. The whole process of Education is shaped and molded by the human personality call the teacher who plays a pivotal role in any system of Education. This places a greater responsibility on the shoulders of the teacher as a Nation builder. In the contemporary world, the teacher's role is undergoing vast changes. Education has been envisioned as the process of all round development with a considerable emphasis on the emotional and personal spheres of the child as well. According to challengers of educational documents, teachers have special responsibilities in every society and the way they are discharged sets the tone for education of the young. They have the potential to mould the tender minds of student so that they become good citizens and good Human beings. But the perception today is that is not happening. The reasons are many and varied. Many activities of the classroom are dependent on the attitude of the teacher that what he or she thing about teaching is reflected in his or her work as a teacher. In the words of Ryan's if teachers can be obtained, the likelihood of attaining the desirable educational out comes is substantial. On the other hand although Schools may here excellent material resources in the forms of equipments, building and text books and curriculum it may be appropriately adapted to community requirement, if the teacher are misfit or are in different to their responsibility, the whole programme is likely to be ineffective and wasted.

But education in 21st century has become more complex than before. Rather the simple process of educating the young to develop their cognitive, effective and psychomotor abilities, teaching young has become difficult. Now, education should be learner centered and should pace with rapid advancements in the society. Changes have become order of the day and changes in society, its settings and values as well as the transformation in the culture have their influence on the individual. Education today has to keep itself ready for such a change. This puts lets of responsibilities on the shoulders of a teacher and the institutes imparting education.

Need and importance of teacher education teaching profession is evident as a teacher has performed multiple activities the teaching , evaluating communicating , guiding and counseling the student organization co-curricular activities and participate community programme , diagnose and remedy student problems , etc together with activities which are in intrinsic to teaching and learning. This need excellence in academic and professional preparation of teachers so, need and importance of teacher's education can be summarized as:-

- To educate teachers in organizing learning resources so that they can identify, design and a variety of appropriate teaching learning resources from the environment community, media, audio-visual aids and self learning material.
- To accomplish them for effective curriculum teaching strategies like developing episodes, instructional aims, sequences etc and through inquiry, discovery problem, solving, project, discussions or lecture.
- To train them to conduct effective interaction with student to promote individual and group learning.
- To educate them to evaluate the outcomes of learning.
- To make them sufficient to implement compensatory educational programme for the disadvantaged learners.
- To make them competent to cater to the special needs of disabled and gifted children.
- To make them proficient to develop in student the quality of democratic citizenship like tolerance concern for others, co-operation, responsibilities commitment to social justice etc.

Hence we can say that, teacher education plays a critical role in defining the total educational system since it prepares its key elements-teachers. The time spent by teacher during their pre-service teacher education programme lays the foundation from where they start conceptualizing and developing an undertaking of the whole scenario of the teaching.

### **BEHAVIOURAL TECHNOLOGY**

Teaching is considered as an integrated, professional activity concerned with bringing about desirable changes in learners. It involves making decisions teaching act in order to provide conditions which facilitate learning. To realize this, in the professional preparation of teachers, the emphasis should be on the development of self- concept and formulation of appropriate cognitive structure, attitude and professional skill in teaching.

Behaviour of the teacher in general and in the class-room in particular is concerned with the development and shaping of the behaviour of the students and their participation in the teaching learning process.

Mc Nergency and Carner regard teacher behaviour as a function of the characteristics of a teacher, his environment and the tasks in which the teacher engages. Teacher's behaviour is not limited to the class-room. It has wider connotation. Teacher behaviour includes teaching behaviour with all its activities or operations relevant to the achievement of specific goals of teaching. Teacher's behaviour includes personality, characteristics, dispositions, attitudes, dominance or

submission and sensitiveness etc. Teachers are not born. They are to be prepared. The pre-service teacher education is very crucial component of teacher education as it prepares the future teachers. Emergence of behavioural technology and its exclusive emphasis on modification of human behaviour through scientific and predictable measures revolutionized the concept of teacher efficiency and competence.

### **CONCEPT OF MICRO-TEACHING**

The role of micro-teaching, in teacher education programmes has been widely recommended by several educators (Copeland, 1975 & 1982). Some educators believe that the introduction of microteaching training is based on the shortcomings of the traditional teacher education programmes (Klinzing & Folden 1991). Other researchers, however, believe that micro-teaching promotes an integration of the fundamental knowledge of good teaching not only for beginners but also for advanced teachers as well. Through microteaching, Wilkinson (1996) adds that student teachers will be more equipped with the necessary skills prior to beginning their student teaching. Jerich (1989) contends that microteaching is one of the many important approaches to introduce and to improve teaching skills through participation and observation. This style of clinical based practice can promote a setting where analysis of teacher behaviour can be evaluated. In other words, micro-teaching may also allow student teachers to practice specific technical teaching skill until they reach an acceptable level of documented performance by utilizing audio or audio-visual recordings (Edwards 1975). As a result, trainees will be able to learn not only through a critical analysis of their own performances, but also through peer feedback (Cruickshank et al. 1993; Joyce & Showers 1988). Micro-teaching enables the pre-service student teachers (Oliver 1993) to receive more training before starting their student teaching program. Support of this argument is drawn from the perception of a large number of the participant student teachers (al-Methen 1995) who expressed the need to experience micro-teaching training. Micro-teaching merits have been highlighted by many educators in terms of empowering student teachers who lack the privilege of field experience.

#### **What is Micro-Teaching?**

Micro-teaching is a scaled-down sample of teaching. It is essentially an opportunity for pre-service teachers and experienced professionals to develop and/or improve specific teaching skills with a small group of students (3-6) by means of brief (4-10 minutes) single-concept lessons. These lessons are usually recorded on videotape for reviewing, refining, and analyzing very specific teaching processes. Micro-teaching is a technique that allows the teacher to place small aspects of teaching

under the microscope. More specifically, micro-teaching is an empirically tested procedure that allows one to:-

1. Practice a new technique, strategy, or procedure in a supportive environment.
2. Prepare and deliver a lesson with a reduced amount of anxiety.
3. Test new ways to approach a topic or lesson.
4. Develop very specific delivery techniques such as introducing a topic, giving an assignment or explaining an evaluation procedure.
5. Be evaluated both by others and by oneself.
6. Gain immediate feedback of one's performance by viewing the video playback (where possible).
7. Risk little but gain much in valuable experience.
8. Subdivide complex teaching interactions into related elements.
9. Manage one's own behavior in a systematic manner.

Micro-teaching has the basic objective of subdividing multifaceted teaching acts into simpler components, so that the task of learning new instructional skills will be more manageable. When prospective or in-service teachers engage in a micro-teaching lesson, they focus on a specific aspect of teaching until a satisfactory minimum competency of that skill has been developed. If a specific skill is not mastered, then a re-teach session is scheduled to perfect it. The teacher proceeds to new skills only after success has been achieved with each preceding one.

### **Why Micro-teaching?**

Micro-teaching is organized practice teaching. The goal is to give instructors confidence, support and feedback by letting them try out among friends and colleagues a short slice of what they plan to do with their students. Ideally, micro-teaching sessions take place before the first day of class, and are videotaped for review individually with an experienced teaching consultant. Micro-teaching is a quick, efficient, proven and fun way to help teachers get off to a strong start.

### **How to Micro-teach?**

As many as six from the same or similar courses can participate in a single micro-teaching session, course heads, a few experienced instructors and a Bok centre staff member are usually invited to serve as facilitators. While one person takes his/her turn as teacher, everyone else plays the roles of

students. It is the job of these pretend pupils to ask and answer questions realistically. It is the job of the pretend teachers to involve his/her "class" actively in this way. Such a scenario typically runs for five to ten minutes. When finished, the person conducting the class has a moment or two react to his/her own teaching. Then everyone else joins in discussion what they saw that they specially liked. Finally, the group may mention just a few things that the practice teacher might try doing differently in the future.

### **What to Prepare?**

Most course heads provide micro-teachers with scenarios to prepare in advance. If not, think of a new minute of material that you especially would like to make sure your students understand by the end of your next class. As always, you should not only plan out how to treat the subject matter, but also give same thought to how you are going to present yourself, manage the class, and involve the students. With regards to practice teaching, it is assumed that, during this period, the pupil teacher will develop proficiency in basic teaching skills and class-room management. In actual practice, however, the programme of student teaching tends to him theoretical and lacks the objective feedback on performance, essential both to motivating and directing behavioural modifications. Hence, improvements were felt to be required not only in the theoretical aspect of the teacher education curriculum, but also in the application of teaching skills. Teaching skills means changing in the behaviour of the student.

### **Training student- teachers in micro-teaching**

Micro-teaching is an organized teaching practice that has been proven by many educators to be a quick, efficient, and fun way to help student teachers get off to a head start during student teaching practice. The goal of such practice is to give student teachers confidence, support, and feedback by letting them try out teaching among friends and colleagues.

The researcher believes that microteaching can help student teachers develop, practice and improve specific instructional skills, strategies, and modes in small group teaching-learning situations. The combination of personal instruction, observation of others, and personal reflection can enhance the development of several teaching qualities upon which the training is based.

The main objective of the micro-teaching session is to provide the participants with an environment for practice-based teaching to instill self-evaluative skills within a department. Presentations take

about 15 minutes each (including presentation, feedback and transition time). Micro-teaching sessions should be held as early in the academic year as possible.

### **Supervision in micro-teaching**

An important aspect of facilitating a more reflective and ultimately dynamic approach to micro-teaching is the supervision afforded by the tutor. More progressive approaches to supervision may also challenge the traditional concept of the tutor's role in micro-teaching which in the teacher as technician model is one of expert and model teacher (Richard,1989).Acheson & Gall(1992) propose a development approach that has three phases which are (1) a planning conference, (2) observation and feedback and (3) feedback and conference. In the work reported here a modified version of the Acheson & Gall's clinical supervision model is used to help student teachers develop their instructional skills, strategies and understanding of the teaching process. The model is not without its problems but is facilitative of a developmental/reflective approach towards teachers' professional development (tinker Sachs, Cheung, Pang and Wong, 1998)

Micro-teaching is the main activity of the Practice Teaching Module before the students go into schools for three week practicum. The main purpose of micro-teaching is to prepare the students for three week practicum by affording them an opportunity to receive feedback on their teaching from their peers and supervisor.

### **RELATIVE LITERATURE OF THE STUDY**

**Verma and Swaroop (1988)** carried out a study on the developing teaching competency among student-teachers of science group through micro-teaching. They found that the teaching competency of the female student-teachers of science group was better in comparison to the male student-teachers of the science group using the micro-teaching group. **Tripta (1989)** conducted a study about the process of planning implementation and dissemination of micro-teaching as an innovation in Colleges of Education in selected regions of India. She found that micro-teaching started in the mid-seventies. She observed that there was need for more leadership centers' to come up.

**Singh and Joshi (1990)** investigated a study on micro-teaching in India. They found that attributes of teaching skills, their extrinsic against intrinsic qualities and their association with learning outcomes had been discussed. **Pandya (1991)** found in his study that there was a significant difference in mean achievement scores between the two groups on the post-test. He concluded that micro-

teaching approach was more effective than the traditional teaching approach. **Gor, Kantilal and Visanji (1992)** made a study to know the effectiveness of micro-teaching strategies for developing the teaching competency of primary teacher- trainees. He found that perceptual modelling approach (theory demonstration and practice of specific micro-teaching skills) was significantly more effective than symbolic modelling (only theoretical knowledge of specific micro-teaching skills) in developing the teaching competency of primary teacher trainees. **Gandhi (1992)** studied about the micro-teaching approach for student-teachers. He revealed that as compared to student-teachers trained through the micro-teaching approach, the student-teachers trained through traditional approach were more direct in their class-room verbal-behaviour, employed a large percentage of teacher talk in the class-room behaviour and showed a narrow percentage of student talk in their class-room behaviour. **Al-Methan (2003)** examined the merits of micro-teaching as perceived by student-teachers. The investigator observed that the student-teachers agreed that micro-teaching has positive merits in (a) Planning skills, (b) Personality and (c) teaching competence. **Sharma Megha (2008)** conducted a study to know the impact of micro-teaching on the teaching competence of pupil-Teacher. She revealed that micro-teaching helps in bringing desirable modification in the behaviour of pupil teachers.

### **JUSTIFICATION OF THE STUDY**

It is the postulate of D.G. Ryan's theory of teacher behaviour that teacher behaviour is modifiable and micro-teaching is one of best source for this purpose. The micro-teaching is used to create situations for the pupil-teachers to bring desirable changes in their behaviour. This is an effective device in developing efficiency and competency in pupil-teachers. The heart of any educational process is 'teaching' which includes training instruction and development of cognitive processes and abilities. The success of any educational reform depends upon the quality of teachers which is in turn, dependent on the quality of teacher educational programme. The Kothari Commission Report advocated the need to adopt modern approaches of teacher training along with corresponding techniques of evaluation, which would in turn awaken curiosity, love for learning, habits of self-study, capacity to think and judge for one self. Dynamism and innovations into teacher education programme techniques like programmed learning, simulation, interaction analysis, team-teaching etc. have been introduced. Micro-teaching is one such innovation which has been incorporated to improve the quality of teaching practice. The teacher in the class-room uses several techniques and procedures to bring about effective learning on the part of his student. In order to



achieve objectives in all three domains the teacher has to acquire all teaching skills and use them appropriately.

Hence, it is necessary that a student teacher is introduced to a wide range of teaching skills. Micro-teaching allows the student teacher to practice any skill independently and integrate it with other skills in familiar environment.

### **OPERATIONAL DEFINITIONS OF TERMS**

**Micro-teaching:** Micro-teaching is a training technique which requires pupil- teachers to teach a single concept using specified teaching skills to a small number of pupils in a short duration of time.

**Teaching Competence:** Teaching competence means having the necessary skill or knowledge on the part of teacher for carrying out the teaching process successfully.

**Pupil-teacher:** A pupil-teacher is one who gets the training of a teacher in College of Education. Various capacities are developed in him during training period like capacity of being a competent teacher, capacity of class management, capacity of maintaining discipline and capacity of organizing various Programmes of the school etc.

### **OBJECTIVES OF THE STUDY**

The main objectives of the study are:

1. To study the impact of Micro-teaching on the performance of pupil-teachers.
2. To assess the impact of Micro-teaching on the performance of Punjab and Himachal Pradesh pupil teachers.
3. To assess the impact of Micro-teaching on the performance of male and female pupil-teachers.
4. To ascertain if there is any difference in the performance of Science and Arts pupil-teachers.
5. To verify pupil-teachers belonging to rural and urban areas have any difference in their performance.
6. To compare the level of performance among graduates and post-graduates pupil- teachers.

## **HYPOTHESES OF THE STUDY**

In order to achieve the afforested objectives the following hypotheses have been framed:-

1. Micro-teaching helps in bringing desirable modification in the behaviour of pupil-teachers.
2. There is no significant difference in the level of performance among Punjab and Himachal Pradesh pupil-teachers.
3. There is no significant difference in the level of performance among male and female pupil-teachers.
4. There are exists no significant difference in the level of performance among science and arts pupil-teachers.
5. There are exists no significant difference in the level of performance among pupil-teachers belonging to rural and urban areas.
6. There is no significant difference in the level of performance among graduate and post-graduate pupil-teachers.

## **DELIMITATIONS OF THE STUDY**

1. The present study will be confined to the pupil-teachers of six colleges of education covering two states Punjab and Himachal Pradesh.
2. The study will explore the impact of Micro-teaching only on the achievement in the behavioural technology.

## **METHODS AND PROCEDURE**

The present study was aimed at studying the impact of micro-teaching on the teaching competence of pupil-teachers. For this purpose Descriptive Survey Method was used. Thus, the investigator followed the procedure of visiting the six Colleges of Education.

## **SAMPLE & SAMPLEING**

The present study for target population the two states were selected Punjab and Himachal Pradesh. Three colleges were selected from each state. The sample of 300 pupil –teachers were selected from 6 colleges where 150 from Punjab and 150 from Himachal Pradesh.

## **TOOL USED**

The investigator had prepared a good, unbiased and relevant questionnaire himself, in which comprising of 50 questions related to Concept of Educational Technology, Concept of behavioural Technology, Concept of Micro-teaching, Role of Feedback in micro-teaching, Procedure and Cycle of Micro-teaching, Supervision in micro-teaching was ready to collect the data for present study.

## **DATA ANALYSIS**

For the purpose of present study investigator concentrated only on four variables such as sex, stream (Art and Science), area (Rural and Urban) and educational qualification (Graduates and Post-graduates).

The responses of the subjects under these variables have been presented in the table in order to ascertain difference among all the respondents under these variables regarding the impact of micro-teaching.

## **STATISTICAL TECHNIQUE**

Statistical techniques are extensively used in educational research. Each statistical method is based upon its own or specific assumption regarding the sample, population and research conditions. Statistics is the body of mathematical techniques or processes for gathering, describing organizing and interpreting numerical data. The data were mainly analyzed in terms of mean, standard deviation and 't'-test was used to find out the significant difference.

## **INTERPETATION AND ANALYSISE OF DATA**

### **HYPOTHESIS I**

**“Micro-teaching helps in bringing desirable modification in the behaviour of pupil-teachers.”**

**Table 1**

Class Interval	Frequency (f)	Percentage (%)
38-42	7	2.33% } 2%
33-37	55	18.33% } 76%
28-32	<b>95</b>	<b>31.66%</b>
23-27	81	27.00% }
17-22	40	13.33% }
13-17	16	5.33% } 20%
8-12	6	2.00% }

For testing this hypothesis the mean scores of pupil-teachers were calculated. It was inferred that approximately 2% of sample was high impact, 76% of sample was average impact while approximately 20% of sample was less impact of micro-teaching.

Hence the hypothesis, “Micro-teaching helps in bringing desirable modification in the behaviour of pupil-teachers” is accepted.

## HYPOTHESIS II

“There is no significant difference in the level of performance among Punjab and Himachal Pradesh pupil-teachers.

**Table 2**

State	N	M	S.D.	t- value	Level of sign.
Punjab	150	27.45	5.39		Not

HP	150	26.82	7.16	0.85	Significant at 0.05 level
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For the verification of this hypothesis mean and standard deviation of the Punjab and Himachal Pradesh pupil-teachers were calculated. 't'-test of significance was applied to mean and standard deviation to test the significance of difference between Punjab and Himachal Pradesh pupil-teachers about the impact of micro-teaching. It was inferred from the t-value that difference is not significant at 0.05 level of confidence.

Hence the hypothesis, "There is no significant difference in the level of performance among male and female pupil-teachers." is accepted.

### **HYPOTHESIS III**

**"There is no significant difference in the level of performance among male and female pupil-teachers."**

**Table 3**

Sex	N	M	S.D.	t- value	Level of sign.
M	48	26.85	6.05	1.55	Not Significant at 0.05 level
F	252	28.40	7.39		

Table 3 shows that the mean and standard deviation score of male pupil-teachers & female pupil-teachers. The t-value is 1.55 which is smaller than the corresponding Table value at 0.05 level. Analyzing this we infer that the sex variation does not exist in the impact of micro-teaching on the performance of pupil-teachers.

Thus the hypothesis 'There is no difference in the level of performance among male and female pupil-teachers', stands accepted.

**HYPOTHESIS IV**

**“There are exists no significant difference in the level of performance among Science and Arts Pupil- teachers.”**

**Table 4**

Stream	N	M	S.D.	t- value	Level of sign.
Science	103	29.05	5.86	4.44	Significant at 0.05 level
Arts	197	25.75	6.27		

The above table shows the mean and standard deviation score of Science pupil-teachers and Arts pupil-teachers. The 't'-value is 4.44 which is greater than the corresponding Table value at 0.05 level. From this we reveal that there is significant difference in the level of performance among Science and Arts pupil-teachers.

Thus the hypothesis 'There are exists no significant difference in the level of performance among Science and Arts pupil- teachers,' stands rejected.

**HYPOTHESIS V**

**“There are exists no significant difference in the level of performance among pupil-teachers belonging to rural and urban areas.”**

**Table 5**

Area	N	M	S.D.	t- value	Level of sign.
Rural	131	27.02	6.76	0.36	Not Significant at 0.05 level
Urban	131	26.72	6.40		

The table 5 shows the mean and standard deviation of rural & urban pupil-teachers. The t-value is 0.36 which is smaller than the corresponding Table value at 0.05 level. Observing this we reveal that the pupil-teachers belong to rural and urban areas not differ significantly in term of their performance level.

Thus the hypothesis 'There are exists no significant difference in the level of performance among pupil-teachers belonging to rural and urban areas,' stands accepted.

#### **HYPOTHESIS VI**

**“There is no significant difference in the level of performance among graduate and post-graduate Pupil-teachers.”**

**Table 6**

<b>Educational Qualification</b>	<b>N</b>	<b>M</b>	<b>S.D.</b>	<b>t- value</b>	<b>Level of sign.</b>
Graduation	223	26.95	6.45	0.82	Not Significant at 0.05 level
Post-Graduation	65	27.68	5.65		

The table 6 shows the mean and standard deviation scores of graduate pupil-teachers and post-graduate pupil-teachers. The t-value is 0.82 which is less than the corresponding Table value at 0.05 levels. Hence, we can say that the pupil-teachers have the same level of performance irrespectively of their educational qualification i.e. graduation and post-graduation.

Thus the hypothesis 'There is no significant difference in the level of performance among graduate and post-graduate Pupil-teachers,' stands accepted.

## **CONCLUSIONS**

1. Micro-teaching helps in bringing desirable modification in the behaviour of pupil-teachers.
2. There are exists no significant difference in the level of performance among Punjab and Himachal Pradesh pupil-teachers.
3. There are exists no significant difference in the level of performance among male and female pupil-teachers.
4. There are exists significant difference in the level of performance among Science Arts pupil-teachers.
5. There are exists no significant difference among pupil-teachers belonging rural and urban areas.
6. There are exists no significant difference in the level of performance among graduate and post-graduate pupil-teachers.

## **EDUCATIONAL IMPLICATIONS**

The Present investigation may have the following educational implications:

1. Micro-teaching may find a place in in-service teacher educational programme.
2. It would help in reducing the time normally taken in practice-teaching and would ensure better academic achievement on the part of the pupil-teachers.
3. At last two continuous periods may be allotted for practicing skills in a micro-teaching setting.
4. Teacher-training institutions may use either peer feedback or peer-cum-audio-tape feedback during micro-teaching treatment.



## **SUGGESTIONS FOR FURTHER RESEARCH**

Following suggestions which can be made for further research:

- ❖ The present study was conducted on a limited sample drawn from the two states that was Himachal Pradesh and Punjab covering only three colleges from each state. The same study may be replicated on a large sample drawn from all the districts of both states.
- ❖ A study may be undertaken to find out the use of micro-teaching for improving General Teaching Competence of in-service teachers.
- ❖ The present study was conducted to know the impact of micro-teaching on the teaching competence of pupil-teachers. The same study may be conducted to know the effect of simulated teaching on the performance level of pupil-teachers.

## **REFERANCE**

- Al- Methan, Amena Ebraheem (1995):** “Answer to student teacher training Problem at the Colleges of education: Kuwait University. Paper presented at the Symposium of Student teaching the colleges of teacher education at countries during the period 29-31 of October. Kuwait.
- Allen, D. W. (1996):**“Micro-teaching: A Description. Stanford University, “School of Education.”
- Best, John W, & James V.Kahn (2007):** “Research in Education” Prentice Hall of India New Delhi-110001
- Colderhead, J & Robson, M. (1991):**“Image of teaching: Student-teacher’s early conceptions of classroom practice, Teaching and Teacher”
- Francis, D. (1997):** “Reconceptualising micro-teaching teaching as critical inquiry. Asia- Pacific Journal of teacher Education.”
- “Fourth Survey of Research in Education” (1983-88): NCERT Volume-I
- “Fifth Survey of Research in Education” (1988-92): NCERT Volume-I

**Good, T. B. (1968):** “An Evaluation of the effectiveness of the micro-teaching technique in the training of Elementary school teachers.” Paper presented at the annual meeting of the American Educational Research Association

**Huber, J.&Ward, B.E.(1969):** “Pre-service Confidence through Micro-teaching.” 90:65-68

**J.S. Rajput (2004):** “Encyclopedia of Indian Education” Volume-I

**Koul Lokeshl (2005):** “Methodology of Educational Research” Vikas Publishing House New Delhi 10002.

**Larz, M. (1992):** “Pre-service teachers’ perception and concern about classroom management and discipline. A qualitative investigation. Journal of science teacher education..

**Malan, M.R. & Strawitz, B.M. (1985):** “Relative effect of micro-teaching and field experience on pre-service teachers. SE 049460, Ep 29796

**Pauline, G.A. (1996):** “Enhancing micro-teaching through additional feedback.” From pre-service administrators. Teaching & Teacher Education 12(2):211-221

**Singh, Dr. Y.K. (2007):** “Instructional Technology in Education”, APH Publication, New Delhi- 110002.

**Sharma, R.A, (2005):**“Teacher Education” International Publishing house, Meerut.

**Stoddart, J. (1978):** “Micro-teaching Working document, ESOL Department, University of London Institute of Education, London.”

**Sharma, R.A. (2005):** “Fundamental of Educational Research” International Publishing House, Meerut.

**Sindhu Kulbir Singh (2007):** Methodology of Educational Research” A-59, Okhla Industrial Area, Phase-II New Delhi-110020.

“Third Survey of Research in Education” (1973-83): NCERT

**Venkataiah, N. (2004):** “Educational Technology”, APH Publication, New Delhi- 110002.