# CHAPTER-II

## REVIEW OF LITERATURE

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CHAPTER-II
REVIEW OF LITERATURE

II A INTRODUCTION

The review of the related literature enables the researcher to define the limits of a field. It helps her to delimit and define her problem. By reviewing the related literature, the researcher can avoid unfruitful and useless problem areas. In order to arrive at the current status of knowledge in the field of teaching ability, micro teaching and multimedia it is important to study the related research studies conducted in these areas.

II B PURPOSE OF THE REVIEW

Review of the related literature, gives the researcher, an understanding of the research methodology. The specific reason for reviewing the related literature is to know about the recommendations of previous researchers, for further research, which they have listed in their studies.

II C SOURCES OF RELATED LITERATURE

Every researcher must have knowledge of sources available in the field of research. The sources available are direct and indirect sources.

Direct sources are Books, Periodicals, and Newspapers etc. Indirect sources are Encyclopedias, Indexes, and Abstracts etc.
The researcher has reviewed the available related literature on the subject. A brief account on the sources of literature which proved to be useful to the researcher is given below.

II D REVIEW OF THE RELATED LITERATURE

The training of teachers demands our urgent attention. The minimum requirement of any training programme is that it should enable the trainee to acquire the basic skills and competencies of a good teacher, such as the capacity to manage a class with pupils of varying abilities; to communicate ideas logically and with clarity; to use the technology available to make teaching effective; to organize education experiences outside of class and to learn to work with the community and help the students to do so. But the training programme does not provide for developing respectively to induction of modern educational aids nor does it impart skills to operate even audiovisual equipments.
2.1 MICRO TEACHING

In any teaching programme, micro teaching has a great importance. Micro-teaching of foreign countries is different from our country. There have been some changes according to Indian condition. India being a poor country cannot use the expensive educational materials like-America, England or other countries. In foreign countries for evaluation of teaching training material, audio, video, tape or C.CT.V. But in India all these functions are performed by friend, pupil teachers who analyze teaching skill and gives the feedback. In foreign countries, the school students are the students for micro-teaching ,but in India friends and colleagues act as a students. In India micro-teaching can be conducted in a minimum time, with a small topic, by using single one skill, to a small group of pupil-teacher. In India it is a new technique. Here the feedbacks are given by the teachers this is known ‘Supervisor Feedback’. Sometimes the friends of the pupil-teacher give the feedback. This is known as a ‘Peer Feedback’. Many times the entire micro-lesson is taped and after teaching the pupil-teacher, sees it and gets feedback. This is known as ‘auto Feedback’. In micro teaching, the pupil-teachers are given opportunity to improve their lesson in a systematic feedback .With the help of this method the teachers are trained in a simplified and comfort situation. The credit of developing the Principles of Micro-teaching in India goes mainly to Prof. R. C. Dass and Balkrishna Passi: In 1975, NCERT, Educational Department of Delhi, CASE Baroda and Education Department of Indore University, jointly worked on this project. In our country the shape of micro-teaching is flexible and practical. Micro-teaching programme can also be carried on in the absence or lack of laboratories, equipments are materials. If we do not have special place, then also micro-teaching programme can be conducted. The base of Standard of Teaching is the capability and efficiency of the teacher. The teachers use various types of technique to improve their teaching out of this micro-teaching is the main and important technique. With this method, the pupil teacher can practice teaching in his own training institution. The main benefit of micro-teaching is that the pupil-teacher focuses on only one skill at a time in their teaching programme. Immediate feedback is always effective as in micro-teaching friends or pupil-teacher provides immediate feedback. That is very helpful in improving the teaching skill. Normally we divide the subject matter in different units and teaching
time is also reduced and numbers of students are also minimized. N.L. Gage told that teaching skills are the special instructional activities and methods that a teacher use in class-room. These skills have different stages by using them a potential teacher can improve their teaching performance. In micro-teaching teachers use various skills and get the immediate feedback and they can improve their performance. Skills like Probing Questioning, Skill of Stimulus Variation, Skill of Explaining, Use of inappropriate vocabulary, vague words and phrases, Skills of illustration with examples, Skill of Reinforcement, Skill of class-room management, Demonstration Skill, Achieving closure.

Olivero (1964) conducted a study of micro teaching techniques. The study indicated that while training the science student-teachers, activities such as teacher talk, questioning blackboard work, and demonstration should be taken into account in preferential order and mathematics teachers needed training, in order of priority, in activities such as explanation, questioning, and blackboard work.

Allen and Eve (1968) explained that micro teaching is a system of controlled practice that makes it possible to concentrate on specific teaching behaviour and to practice teaching under controlled conditions.

Bell (1968) suggested that micro teaching group showed significant gain in teaching performance from initial lesson to final lesson.

Kallenback and Gall (1969) compared the effectiveness of micro teaching approach and conventional approach in training elementary school interns and pointed out that micro teaching approach was superior to the other in terms of time required for training.

Harris (1970) indicated the value of micro teaching that micro teaching experiences promoted use of background in information provision of
concrete materials utilizing children's observations, allowing developing conclusions, helping children to verify conclusions etc. In traditional training system the global supervisory comments fail to provide a systematic and specific feedback to the pupil teacher to plan improvement in subsequent teaching. Some of the pupil teachers after such traumatic experience develop such a fear for teaching that they are reluctant to face the class, but micro teaching remove these conditions.

**Encyclopedia of Education (1971)** edited by Deighton that micro teaching is a real, constructed scaled down teaching encounter which is used for teacher training, curriculum development and research.

**Ward (1970)** focused that micro teaching improved the attitude of staff as well as students towards education.

**Abraham (1974)** reported that micro teaching was effective in developing the skills of fluency in questioning and probing questions.

**Linn (1972)** opined that micro teaching can subsequently improve students’ skills in evaluating aspect of teaching.

**Joshi (1974)** pointed out that Micro Teaching was effective in developing the skills of reinforcement and silence and non verbal cues.

**Bhattacharya (1974)** reported that this technique with poly technique teachers and proves that micro teaching was more effective than the conventional technique is to development of indirect teacher behaviour.
Clift (1976) have explained it that a teacher training procedure which reduces the teaching situations to a simpler and more controlled encounter achieved by limiting the practice to a specific skill and reducing teaching time and class size.

Passi (1976) stated that in micro teaching PT teach one concept with single skill to 6-8 pupils for a short period of time.

Brunis (1978) suggested that the effectiveness of micro teaching and feedback in the development of the skills of recognizing attending behaviour and teacher's liveliness among in service teachers.

Mathew (1978) focused that for the development of general Teaching ability the effect of micro teaching is significantly more than that of equivalent traditional group of acquiring same teaching skills. The traditional teaching training entire practice teaching programme was not suited to individual talent development.

Paintal (1980) investigated an evaluation of micro teaching and other recent innovations in educational technology. The main objective of the investigation was to know the effect of transferring the self-instructional micro teaching course on effective questioning. The sample consisted of 164 subjects (30 males and 134 females) out of whom 83 were B.Ed. students, 70 in service teachers and 11 teacher educators from Delhi and Haryana. Paintal found that there was significant difference in the teaching behaviour before the course and immediately after the course.

Kulshreshta (1982) conducted a study of the relative effectiveness of the mini-teaching and the micro teaching approaches in training teachers. The objective of the study was to study the relative effectiveness of micro teaching and mini-teaching in case of teacher training belonging to socio-economic status,
different level of intelligence. The study was based on a sample of 40 trainees drawn from DAV College of Education Dehradun and 20 trainees drawn from DWT College of Education, Dehradun. The study indicated that the effectiveness of mini-teaching was found significant on DATS in the case of G4 and G5 in average and low socio-economic status, respectively and the pupils of teacher trainees trained through mini-teaching scored significantly higher than the students taught by trainees trained through micro teaching.

Khan (1985) conducted a study on effectiveness of micro teaching technique in terms of students’ achievement. The objective of the study was to examine the effectiveness of micro teaching technique in the acquisition of certain teaching skills, viz., the skills of introducing a lesson, probing questions, illustrating with examples, using black-board, and achieving closure in real classroom situations and found student-teachers treated with the technique of skill-based micro teaching were found to be more effective in, General Teaching ability then those trained in the traditional method of teaching English and each of the five skills depicted significant improvement in the case of micro teaching when compared on the basis of the data of post-teaching sessions of both the methods under study.

Pandian (1987) conducted a study on micro teaching behaviour and teaching skill performance pattern in different school subjects. The objective of the study was to analyze teaching skills, components of the various kills, the structural pattern of the teaching skills and the differences, if any, In the structural patterns of teaching skill performance in various subjects. The study was based on a sample of 100 student teachers of Gujrat University. The study indicated that the sample practised the four skills: explanation, stimulus-variation, reacting and questioning and found that teachers practised at more than 5% level of frequency of occurrence.
Das et al. (1988) conducted a study effect of intervention training in the integration of teaching ability of PT (prospective-teachers). The aim was to compare the impact of the vicarious integration and summative model of integration of teaching skills. The sample consisted of 144 student teachers ranging from 16-26 years of age from seven colleges of education and they found that out of the four colleges of education which compared the summative model of integration intervention with vicarious integration, the differences in the mean gain scores were found to be significant only in the case of one college

Dwivedi (1988) conducted a study of an investigation into the effectiveness on micro teaching in the development of psychomotor skills in biology practicals. The aim was to know the impact of micro teaching the integrated and the non-integrated approach in the acquisition of psychomotor skills and concluded that the micro teaching integrated approach with four cycles was better than the traditional teaching integrated approach with one, two or three exposures for teaching and learning of the psychomotor skills of collecting, mounting and preserving. For drawing skills, micro teaching the integrated and the non-integrated approach with four cycles was better than one or two exposures of traditional teaching integrated approach.

Sultana (1988) conducted a study of the modification of behaviour of pupil-teachers of science through micro teaching approach, with special reference to Gorakhpur University. The aim was to assess the modification of behaviour of pupil-teachers of science through the micro teaching approach, and to study the attitude of pupil-teachers towards the micro teaching approach. The study was based on a sample of 60 pupil teachers of science in the training colleges of Gorakhpur University in the session 1984-85 and 1985-86. He found that the art of introducing a topic and asking questions and experimentation, each skill having 10 pupil-teachers, were significant, which meant that after getting feedback these teachers changed their behaviour towards teaching during micro teaching.
Verma (1988) conducted a study on developing Teaching ability among student teachers of science group through micro teaching. The aim was to study the effect of training on prospective-teachers teaching reinforcement skill, questioning skill, stimulus variation, illustration and art of explaining, using micro teaching technique through observation schedule in simulated conditions and to compare the Teaching ability between male/female, urban/rural, experience/inexperienced student-teachers of the science group, developed through micro teaching in real classroom situations. Verma found that the experimental group showed better competencies in above stated skills. The Teaching ability 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 approach and the experimental group indicated favourable attitude towards the micro teaching approach.

Wadhwa (1988) conducted a study related to the factorial structure of attitudes of teacher-trainees towards micro teaching. The aim was to reveal the impact of micro teaching and identify various underlying dimensions on a 40-item scale of attitude towards the micro teaching technique and concluded that the degree of internal consistency of the attitude scale was found to be satisfactory. It is clear from the high degree of internal consistency and reliability that there was a fair degree of coherence within the attitudinal domain and a comparison of the factorial structure obtained through factor analysis with the classification scheme used in the development of the attitude scale indicated that the two were similar. Most of the items on Factors I, III, VI and IX came from the Functional Device category. Factor II and IV derived most of the variables from the Functionless Device category. Four of the seven items of Factor VII came from the Functional Goals category. All the three items of Factor VIII and two items of Factor V came from the Functional Behavioural Change category. On Factor X, all the three items came from different categories. Thus the factors Functional Device (I), power and Preference (III), Utility and Value (VI) and Universals for Teachers (IX) seemed to be closely related, which suggested that micro teaching is a functional, powerful and valuable instrument useful for all teachers.
Tripta (1989) pointed out in a case study of micro teaching as an innovation and has foreseen the need of an organization which would promote innovation in teacher education. Tripta found that the superiority of the micro teaching versus the conventional training in developing six skills- the skills of demonstrating, drawing diagrams, blackboard-writing, probing questioning, using basic skills of biology practical, and heuristic skill, was established on the post-test as well as on retention test and the performance of the micro teaching technique in developing the ability to use the learnt skills in an integrated form was better than that of the conventional training. This integration took place vicariously and did not need deliberate planning.

Asija (1990) examined Teaching ability as related to enhancement of skills in teaching of biology through micro teaching among prospective secondary school teachers. The aim was to study whether micro teaching group is superior to the conventional training group. The sample comprised B.Ed. students of two academic sessions from the D.A.V. College of the Education Abohar. Asija found the superiority of the micro teaching versus the conventional training in developing six skills of demonstrating, drawing diagrams, blackboard writing, probing questioning, using basic skills of biology practicals, and heuristic skills, was established on the post-test as well as on retention test.

Singh and Joshi (1990) conducted a study on micro teaching in our country. Aim was to trace out the scientific and systematic efforts made in India in the area of micro teaching as a valuable training technique supplementary to the existing teacher-training. The study indicated that various conceptual and practical aspects related to micro teaching have been discussed by way of definitions, rationale for micro teaching and the salient features of an Indian model of micro teaching.

Pandya (1991) conducted a study of the relative impact of micro teaching and the traditional technique of teacher training in the development of teaching ability of the PTs of secondary teachers' training colleges. The purpose was to compare
the general Teaching ability of PTs of secondary teachers training colleges through the micro teaching technique and through the traditional technique and found marked difference in mean achievement scores between the two groups on the post-test and micro teaching approach dominated the traditional teaching approach.

Gandhi (1992) conducted a study micro teaching approach for student-teachers. The aim was to study whether the development of teaching skills through the micro teaching strategy helped in shaping behaviour modification of students and to compare the outcomes with those acquired by the traditional approach. The sample comprised 40 students of B.Ed. class at R.P. Ananda College of Education, Barsad. The study indicated that the student-teachers trained though the micro teaching approach was more direct in their classroom verbal-behaviour than the student-teacher trained through the traditional approach.

Gor (1992) conducted a research to know the impact of micro teaching strategies for developing the Teaching ability of primary teacher-trainees. The aim was to study the impact of micro teaching strategies with respect to symbolic modeling and perceptual modeling, upon attitude towards profession, professional information and interest in the teaching profession of teacher trainees. The study was based on a sample of 36 teacher trainees. Gor concluded that micro teaching strategies produced a significant effect on attitude and interest of PT in the profession of teaching and specific micro teaching skills developed well in simulated condition significantly improved the Teaching ability of primary teacher-trainees.

Dutta (1998) conducted a study of integration in micro teaching. The aim was to study the effect of the traditional teaching technique on the general Teaching ability and attitude towards teaching of prospective-teachers of control group and to study the effect of micro teaching on the general teaching ability and attitude towards teaching of the experimental group Dutta found that the traditional
teaching technique, the micro teaching technique and integration training through the additive pattern had a significant and positive effect in developing general Teaching ability.

**Thukral and Madan (2003)** conducted a study on student teaching programme in Colleges of Education under Guru Nanak Dev University. The was to ascertain if student teachers are provided opportunities to get fully prepared before going to school for teaching practice and to study whether there is scope for improvement in evaluation procedure of skills lessons. They found that student teachers confirm that procedure of student teaching programme needs improvements and micro teaching is arranged to help students, and to enable them to deliver lessons impressively. With micro teaching, they feel confident and acquire efficiency in teaching.

**Panda (2004)** focused that the student teachers receive micro teaching lessons were significant better than others taught through traditional techniques on four teaching skills sets induction, questioning, explaining and blackboard summary.

**Singh (2005)** conducted a study on re-organization of student teaching performance. The aim was to study the current trends and practices on student teaching programme prevailing in the country and to recommend future plan and action in order to bring qualitative changes in student teaching programme.

**Sarsani and Ananthula (2008)** conducted a study on the attitude of student teachers towards micro teaching with respect to their personal and background variables. The aim was to find the difference between male and female, post graduate and graduate, science and arts, private and government student teachers with regard to their attitude towards micro teaching. They found no marked difference in male and female, post graduate and graduate, arts and science, private and government student teachers with regard to their attitude towards micro teaching. The difference between post graduate and graduate, science and arts student teachers with regard to their attitude towards micro teaching.
2.2 TEACHING SKILLS

Broadly speaking general classification of teaching skills must enable a teacher to help the learner in his mental, emotional, social, moral and aesthetic development and to inculcate in him the habits, attitudes, values which are essential for living in a secular, democratic, better human understanding and personal social guidance which is to be provided to learner by the teacher on one side and to make his teaching effective on the other. The basis of Standard of Teaching is the capability and efficiency of the teacher. The teacher uses various techniques to improve his teaching. These activities are the various skills that he sharpens. Through the medium of teaching, these skills are developed. All the activities that are undertaken in teaching are the various skills of teaching. Education is a complex and extraordinary activity which consist of different kind of skills. This encourages and inspires the learner to create situations for interaction and also makes him desirous of fulfilling the special objectives. All these are specialities of teaching skills.

Amudson (1973) found in his study on questioning skills and related abilities that treatment improved the skills of pertinent questioning and perceiving problems. The study concluded that student activity oriented instruction was not significantly superior to those instructions in which pupils were more passive for developing cognitive skills and content achievement.

Singh (1979) in his study found that micro teaching technique was more effective in changing the teacher’s behaviour than Flanders’ interaction analysis category system when criterion was indirect teacher behaviour.

Rusbult and Farell (1983) revealed that the job commitment is a multi faceted phenomenon too complex to be explained by knowing only the individuals level of job satisfaction.
Kaur (1985) found in her study that Flander interaction analysis technique of the modification of behaviour is a better technique than micro teaching technique for the modification of questioning behaviour of in-service teachers of a sample. Both modification techniques found to be equally effective for developing skill of asking high order questions. This study also concluded that in case of middle order and low order-questioning behaviour, interaction analysis technique was found to be more effective than micro teaching technique.

Kalyanpurkar (1986) conducted a study on the effect of microteaching on the Teaching ability of in-service teachers and its impact of pupil’s attainment and pupils’ liking. The aim was to study the effect of microteaching training on the development of selected skills, viz., probing questioning, reinforcement, explaining with example, and stimulus variation, in in-service teachers and to study the effect of microteaching training on the development of general teaching ability of in in-service teachers. The study indicated that Microteaching treatment had marked +ve impact in growth of skills, viz., probing questioning, reinforcement, explaining with example and stimulus variation, when the post-test mean scores of the respective skills for experimental and control groups were adjusted for the pretest scores of the respective skills and micro teaching treatment had marked +ve impact on growth of general Teaching ability, when the post-test general Teaching ability means of the two groups were adjusted for pretest general Teaching ability scores.

Maheshwari (1986) noticed that effective teachers exercise more indirect influence, student initiation and teacher response ratio, used ideas of pupils, asks questions and the effective teachers used more creative teaching models.

Bennet (1987) studied the effectiveness of staff development training practice:

A meta-analysis. The study examined the effectiveness of staff development training procedures on teachers’ attitude, knowledge and skill
acquisition and transferred training classroom practice. Results indicated that information and theory treatments had minimal effects on teacher attitude, skill transfer – the combination of theory demonstration; feed back resulted in meaningful effects on skill acquisition and transfer of training. The results of this study demonstrated that teachers learn a wide range of skills and strategies and implement them in their classroom when sufficient opportunities to learn provided.

Kaur (1987) found that there is a positive effect of training of Flander interaction analysis technique on the skills of increasing fluency in questioning, illustrating with examples and reinforcement whereas there is not any significant effect of training in FIACS on the skills of probing in questioning and pupil participation.

Dubey (1989) conducted a study on effectiveness of a training strategy for developing feedback-receiving competence in relation to selected organismic variables of student-teachers. The objectives of the study were to determine whether the feedback training strategy affects the self-assessed feedback-giving competence of student-teachers and self-assessed feedback-receiving competence of student-teachers in relation to the personality, intelligence, and flexibility of the student-teachers. Dubey found that the feedback training strategy was effective in developing the feedback-giving and feedback-receiving competence of student-teachers and the feedback training strategy improved the feedback-giving and feedback-receiving competence of student-teachers and intelligence further contributed in the development of feedback-receiving competence. However, the flexibility contributed in the development of feedback-giving competence.

Arockiam (1990) conducted a study on training strategies in developing questioning skills among primary school teachers. The objectives of the study were to prepare a self-learning package on questioning skills and to assess the effectiveness of the training and learning packages and concluded that primary school teachers improved their questioning skills through the self-learning
package and training on questioning strategy and the self-learning package on questioning skills was found to be effective.

**Asija and Pratap (1990)** conducted a study on Teaching ability as related to growth of skills in teaching of biology through micro teaching among prospective secondary school teachers. The aim was to study whether the micro teaching group shows better performance than the conventional training group in respect of development or skills specific to teaching of biology and to study whether the micro teaching group is superior to the conventional training group. The study indicated that the superiority of the micro teaching versus the conventional training in developing six skills – the skills of demonstrating, drawing diagrams, blackboard-writing, probing questioning, using basic skills of biology practical, and heuristic skills, was established on the post-test as well as on retention test and the performance of the micro teaching technique in developing the ability to use the learnt skills in an integrated form was better than that of the conventional training. This integration took place vicariously and did not need deliberate planning.

**Gill (1990)** conducted a study on the effect of training strategies on creative problem-solving skills and cerebral dominance in relation to intelligence, personality and cognitive style. The objectives of the study were to determine whether the training strategies affect creative problem-solving skills and cerebral dominance and to study if the intelligence, personality and cognitive style affect the creative problem-solving skills. Gill concluded that the right-brain training strategy emerged as superior to the left-brain training strategy, so far as creative problem-solving skills in mathematics were concerned and High-intelligent subjects scored higher on originality than low-intelligent subjects irrespective of training strategy, whereas fluency, flexibility and creative problem-solving totals were not affected by levels of intelligence.
Singh (1990) conducted a study of the effectiveness of different integration strategies for developing teaching skills among student-teachers. A meso-teaching approach. The aim was to study the effectiveness of different strategies of integration of teaching skills in the development of the general Teaching ability of teachers and to compare competence in teaching skills and the classroom verbal behaviour of the student-teachers trained through micro teaching and meso-teaching. Singh found that the student-teachers trained through micro teaching only showed the following modifications in their classroom behaviours: An increased use of behaviour in categories, ‘Accepted feelings’, ‘Praise or encouragement’, ‘Using pupil’s ideas’, ‘Asking questions’, ‘Giving directions’, and ‘Criticizing or justifying authority ‘Silence’ or ‘Confusion’ was adequately minimized. There was considerable increase in ‘Teacher-talk’ particularly in ‘Indirect-teacher talk’ (which changed the ratio of ‘Indirect-influence’ over ‘Direct- influence’). The overall behaviour pattern of ‘Indirectness’ remained, more or less, unchanged.

Dweck (1999) stressed that teaching ability (motivation in teaching) and need satisfaction are linked factors. If the job of the teacher is satisfied then naturally improvement in performance will be observed. Unsatisfied needs make the people in action. Teacher will work hard to make his job secure and in this process his performance will enhance.

Jayanthi et al. (2006) emphasized that teacher play and important role in shaping and molding the habits, manners and good character of the children.

Khan (2007) opined that effective classroom teaching needs good planning and good personality of a teacher.

Reddy et al. (2009) conducted a study on effectiveness of comprehensive social skill strategy in overcoming social skill deficiency of the defiant students. The objectives of the study were to develop a comprehensive social skill strategy to
develop social skills of the defiant students studying standard VIII and to find out whether there is any significant difference in the pre-test performance between the control group defiant students and experimental group defiant students. The study indicated that there exists significant difference between pre-test and post-test Mean scores of the defiant students with social skill deficiency in the experimental group and there exists significant difference in the post-test performance of the defiant students with social skill deficiency between the control group and experimental group after adopting the social skill strategy.
2.3 MULTIMEDIA

Media is undergoing a fast change in the present time. We sense the world around us by our five sense organs. Our sense organs i.e. eye, ear, nose, tongue and skin give us the sensations of seeing, hearing, smelling, taste and touch respectively. Any changes in the environment affect our sense organs. These stimuli may be change in the visual field, sound, smell, taste and temperature etc. We are able to attach some meaning to our sensations i.e. when we are able to name the colour, shape, size, sound and smell etc. We perceive that change in the environment. These perceptions add to our pre-existing store of knowledge and learning takes place. Perceptions stand for facts or data with which we think and further organized in the form of concept, generalizations and principles. Hence for better learning our perceptions should be clear and should be in as many forms as possible and teaching aids do it.

A teaching aid is any material aid that affects our sense organs and helps in making learning meaningful and interesting. A teaching aid can be any material aid that can affects any of the sense organs whereas an multimedia aid affects the auditory and visual sense organs. Hence for better learning it becomes necessary that things should be clear at perceptions level. For better perceptions objects, events and phenomena should be sensed in as many ways as possible. Teaching aids help us in gaining information through multisensory experiences such as seeing, hearing, tasting, smelling and working with them and this can be achieved by the use of visual, auditory, multimedia and activity aids.

Further, any change in behaviour is said to be learning and this change may be in the store of knowledge, value system possessed by the individual and neuro-muscular co-ordinations. Learning through different sense organs is more durable than by words only. It is estimated that about 86% of our knowledge is gained through visual and auditory sense organs which suggest more stress on multimedia perception. It has also been found out that about 20% more is learnt by the use of
multimedia aids and there is about 38% more retention over period of time. Lower stages of school children learn and retain more from concrete experiences.

The importance of multimedia of teaching aids in communication and learning has been recognized from early periods. Greeks and Romans are reported to have used words, picture and symbols to convey their thoughts and information. Rousseau also discouraged use of word only in education and stressed that surrounding of the child should also be taken into consideration. He suggested a shift from teacher centred education to child centred education. Froebel suggested that children should be provided with doing opportunities as learning by doing is quite significant in gaining knowledge.

Piaget’s developmental stages i.e. Sensor motor, Pre-operational, Concrete Operational and Formal Operational and eight types of conditions of learning suggested by Gagne i.e. Signal Learning, Stimulus-Response learning, changing, Verbal Association, Multiple Discrimination, Concept Learning, Principle Learning and Problem Solving, suggest devising/selection of teaching aids according to the level of students and sequencing these multi-sensory experiences in such ways that maximum learning may take place. A wise selection of teaching aids involves consideration about the levels of students, nature of subject matters, resources at the disposal of the teacher and the methods and technique adopted by the teacher so that maximum teaching learning takes place. Today’s teaching aims at transmission of exponentially increasing knowledge to even earlier stages of students which in turn require structuring of experiences to the students in most effective way. Some modern teaching aids help in preservation, transmission and furtherance of knowledge and hence form an important part of Educational Technology.
NEED AND IMPORTANCE OF MULTIMEDIA EDUCATION

Keeping in view the above discussion about the importance and utilization of teaching aids it seems to be quite important that teachers and teacher educators should be given multimedia education. Besides being aware of the importance of teaching aids in the process of teaching-learning, a teacher should also be able to effectively utilize teaching aids.

1. Multimedia education gives the teachers knowledge about the process of learning, the knowledge about the nature of learning, the role of sense organs in gaining knowledge and the importance of making learning experiences multisensory by using teaching aids.

2. Multimedia education imparts the teacher knowledge of different multimedia i.e. different types of teaching aids which can be used from time to time, which help the teacher in communicating the subject matter to his students in a more meaningful way.

3. Teachers should also know about the proper selection, use and preservation of teaching aids. A teacher should be able to judge what teaching aid he should use in a particular teaching-learning situation. Multimedia education helps the teacher wise selection of teaching aids out of the available ones and optimum utilization of selected aids in specific teaching-learning situations.

4. There have been a lot of innovations in the field of multimedia education. Use of projected material requires a teacher to handle different types of projectors such as slide projector, epidiascope, film projector and overhead projector. The teacher has also to use teaching machines, television and computers, which requires specialized training. A teacher should be aware of operations of different hardware used in the field of education and he should also have
some training to properly handle these devices and multimedia education helps the teacher in this field.

5. Teaching also demand preparation of certain teaching aids on the part of the teacher. He may be required of prepare charts, picture and other means of duplications. Multimedia education helps the teacher in construction and improvisation of teaching aids and duplications of different forms of information which he has to use in his classroom teaching.

6. A teacher should know about organizing a multimedia library, museum, aquarium, vivarium, exhibition and fairs etc. so that optimum utilization of available resource can be undertaken. Multimedia education helps the teacher in acquiring these organizational skills.

7. In order to give the students first hand experiences a teacher has to organize field trips and excursions from time to time. He may be required to take the students to some industrial establishment, zoo, botanical garden, planetarium and other field trips. A teacher should be able to provide leadership during these occasions and manage such trips. He is also required to supervise the hobbies, club activities and project work of the students. Multimedia education enables the teacher to organize and manage out of the class activities.

8. A teacher should be aware of different sources from where he can collect/purchase/borrow teaching aids required for his purpose and multimedia education also helps in making him resourceful.
IMPORTANT OF MULTIMEDIA AIDS

Multimedia aids have wide significance in teaching-learning situation. The importance of these teaching aids can be justified due to a number of their characteristics.

1. **Involvement of maximum senses:** All new knowledge comes through the sense organs. When multimedia aids are used, the organs that sense seeing, hearing, touch, smell and taste are utilized and provide more than one avenues for the incoming knowledge. Use of multimedia aids in teaching utilizes more than one sense organs in receiving knowledge.

2. **Utilize maxims of teaching:** Use of multimedia aids helps in better communication and utilizing the maxims of teaching like teaching from concrete to abstract’, ‘simple to complex,’ ‘known to unknown’, and learning by doing.

3. **Attention Compellers:** New things, colour objects and moving things catch attention readily and hence use of these forms of multimedia aids helps to sustain attention of learners to the things been taught.

4. **Motivating force:** Use of multimedia aids motivates the students for further learning. New, attractive, moving things, demonstration arouse curiosity in the students and leads to monotonous teaching were attention of the students gets lost after some time or they feel bored. Use of multimedia aids reduce the proportion of verbal taught and breaks the monotony in teaching.

5. **Helping in clearing of concepts:** When things are allowed only, the pupil teacher develop images of the things being discussed which are based on their
previous experiences but when a thing is reality is shown they create real mental image of the things. If we are taking about a animal, its shape, size, colour, behaviour, texture, adaptations to its environment may lead to the development of different images.

6. **Best Alternate for Direct Experience:** Our knowledge, experiences and thinking depends upon our experiences. With the help of multi-media we can get a direct experience as the things may be too small or large that may not be bring in to class room.

7. **Meeting Inadequate Resources:** Use of film shows, radio and television lesson as well as teaching can meet the inadequacy of resources in teaching. Radio and television lessons can prove good quality teaching even in rural areas if properly planned and delivered. Hence with the help of multi-media we can train the teachers so that they can teach the students effectively and make their teaching effective.

8. **It Increase Students Participation in Teaching:** Involving the students in teaching is a good teaching skill. With the help of multi-media we can train our prospective teacher in an effective way. When students are involved in teaching they felled motivated. The problem of indiscipline will also remove from the class. Pupil-teacher can becomes perfect teacher by the use of multi-media. Demonstration is also a effective part of teachers training. Trained teacher can demonstrate the lesson by using multi-media.

9. **Helps in Development in Scientific Attitude:** - When actual things, their representations or demonstrations are organized before the students they intend more to believe in cause and effect relationship which leads in their development of scientific attitude and they are not easily carried away by superstition and supernatural stories. Habit of working with the things systematically develops scientific method of working in the students. Use of
multimedia in teaching situations also makes teachers more confident in teaching. Multimedia also helps presenting the lessons systematically.

10. **Help in Better Learning and Retention:** Things taught by using multimedia lead to better learning and retention of learned experiences for longer time. Magic lantern, epidiascope, slide projector, film strip projector, opaque projector, overhead projector, radio, television, radio vision, record player, tape recorder and motion picture projectors, teaching machine and computers are some of educational hardware. By these more students with less expenditure and time can be educated.

**Singh and Shukla (1980)** investigated a case study of school broadcasts in Delhi. The objectives of the investigation were to examine the extent of radio utilization in Delhi schools and to study teachers’ attitude towards school broadcasts. The study was based on a sample of 532 schools and found after listening to the programmes, the experimental group gained on all programmes to the extent of 7 to 17 per cent.

**Goel (1982)** a study of school broadcasts in India. The aim was to study the functioning of school broadcast units with respect to different aspects of the programme such as transmission, script preparation etc. and to find out the extent of utilization of school broadcasts in schools and found that the majority of the principals of the colleges of education thought it advisable for the pupil-teachers to listen to the school broadcast programmes and offer suggestions to the AIR for improving these programmes.

**Golani (1982)** conducted a study on effect on AV aid in the Sec. Schools of Thane. The objective of the study was to create awareness among teachers and headmasters of secondary schools about the importance of audio-visual aids. The study was based on a sample of 217 secondary schools of Thane district. Golani found that teaching aids were essential and useful in developing clear concepts and in stimulating learning.
Dasgupta (1988) study revealed that the personalized system of instruction group done better on end tests than the conventional group. On retention and attitude tests, there was no significant difference.

Educational Technology Cell (1988) conducted a study on need assessment studies: introduction of television in educational work in Meghalaya. The aim was to assess the needs of different beneficiaries in the introduction of television in educational work. The study indicated that the time preferred for educational telecasts was not same by different categories of respondents. A high proportion of heads of school preferred television programmes to become a part of the classwork; a high proportion of teachers preferred to have the educational telecasts during the school recess/break. However, the majority of parents and students preferred such programmes in the evenings. Regarding the frequency of telecast there was general agreement among the different categories of respondents with most of them preferring one telecast a day. The duration of telecast suggested by the respondents varied between 30 minutes to 1 hour, with students showing preference for a longer duration and the suggestions given by the respondents included provision of television sets to schools; training of teachers for the work; linking television programmes to school subjects; use of local languages in educational television telecasts.

Mehra (1988) conducted a study to investigate the effectiveness of the integrated system of instruction in different school climates. She designed an integration system and compared its effectiveness with the traditional system in two institutions which had a different school culture, e.g., authoritarian and democratic.

Mohanty (1988) conducted a study to see the impact of educational TV programmes on academic achievement of school children in General Science, Social Science and Languages and he observed marked improvement in the score and academic achievement of these children and the measure of language development
was significant. Going over the mean scores of the experimental group in respect of language, it was concluded that television exposure had the most beneficial effect on the children of Bolangir District, followed by Sambalpur and Dhenkanal in that order.

**Sudame and Goel (1988)** conducted a study on school broadcasts in Baroda district. The aim was to assess the production of school broadcast programmes and to assess the utilization of school broadcasts in the secondary schools of Baroda District. They found that Production of school broadcasts: all programmes except tele programmes were planned and produced by the producer, educational broadcasts All India Radio, Ahmedabad. The commonly used broadcast formats were: talk, dialogue and discussion. Scriptwriters received no training or orientation. A yearly schedule of school broadcasts along with brief outlines of the radio-lessons was published in the SIE journal. All India Radio had little coordinate with other agencies.

**Antonymsamy (1989)** conducted a study teaching environmental concepts to school drop-outs through video and charts. The objectives of the study were to prepare a video programme on environmental concepts and to find out experimentally whether the video method is more effective than using charts in teaching the environmental concepts. He concluded that the school drop-outs taught by the video method learned more concepts on environment than those who were taught by using charts and the working children improved their achievement on environmental concepts after viewing the video programme.

**Debi (1989)** conducted a study, the objectives of the study were to construct and standardize a criterion test in the principles of education for bachelor of education students and to construct, develop and validate programmed material in the principles of education. Debi concluded that the programme learning material was found to be effective compared to the traditional method of teaching, in achievement in principles of education in sub-tests 1, 2, and 3.
**Educational Technology Cell (1989)** conducted a study on feedback studies of educational broadcast on continuous enrichment scheme. The aim was to enable the teachers to improve their teaching skills and to improve the classroom teaching-learning situations and to enrich the experience of both the teachers and the pupils by familiarizing with the latest information on educational innovations and concluded that the academic content of the programme was found suitable, the language used was easy to understand; and the method of presentation suitable.

**Mishra (1989)** analysed radio programmes of primary school. The aim was to study the effectiveness and impact of primary school radio programmes and to know the attitudes of children, parents, teachers and students towards the programmes. and found that the maximum percentage is 46.1% programmes was developed to song programmes which were found interesting.

**Yadav et al. (1989)** keeping in view the spirit, not the form of programmed learning developed twelve modules, self-contained and self-instructional, on research methodology. The modules went under the same chain of region that are needed for developing any self-instructional material. The materials were tried out and modified. Before the final draft the researchers got them edited by professional researchers. The result is a bunch of self contained modules of research methodology.

**Arockiam (1990)** conducted a study on evaluation of the UGC country-wide educational television. The aim was to verify the extent to which the university grant commission country-wide enriched knowledge and promoted development and utilized the potentiality of the television medium and he found that the telecasts were confined to applied science and social science and the humanities programmes provided in India offered the least knowledge enrichment.
Chaudhary (1990) conducted a study on teachers’ attitude towards school television and its relationship to mass media behaviour and job satisfaction. The aim was to study the relationship between the teachers’ attitude toward school television and his mass-media behaviour and to study the influence of the personal and academic characteristics of teachers in relation to their attitude toward school television. Chaudhary found that the custodian teachers, on the whole, had a fairly favourable attitude toward school television. They perceived school television as an acceptable medium for teaching students and for presentation of instructional material and Teachers’ attitude toward school television and their job satisfaction were positively related.

Chowdhry (1990) conducted a study on ‘Khilte Phool’ – an audio-intervention study at Kota (Rajasthan). The objectives of the study were to inculcate in children an awareness of their immediate environment and to develop in teachers/anganwadi workers the skills to use the ‘play-way’ activity method in teaching young children. The study indicated that the children of the experimental group in anganwadis got better score in listening, recalling, thinking, knowledge of colour and shapes etc.

Giri (1990) conducted a study on problems and prospects of the school broadcast programme. The aim was to evaluate the modus operandi of the planning and production of school broadcast programmes and to study the barriers, if any, standing in the way of the planning, production and utilization of such programmes. Giri found that Highly stable percentages were found both in the urban (81.01%) as well as rural (74.02%) sectors confirming the usefulness of the broadcast programmes for teachers in their teaching wok, as per the response of the teachers and as per the views of the teachers (urban 100%, and rural 97.4%) the broadcast programmes were helpful to the students in their learning.

Mohanty (1990) conducted a study on a critical appraisal of primary school radio programmes and their effectiveness for pupil’s growth. The objectives
of the study were to identify the nature of the contents of primary school programmes broadcast by All India Radio, Cuttack, and to ascertain pupils’ growth and to know about the suitability of language and format in respect of comprehension of the primary school programmes. The study indicated that the criterion measures for the gains revealed that the difference between the experimental and control groups were significant, and the difference between the rural and the urban group was found to be highly significant and comprehension of the programme contents indicated that media programmes were only moderately comprehended and that there was no remarkable effect of the duration of exposure on the target audience.

Singh (1990) surveyed the availability and use of teaching aids in middle and secondary schools of Jammu & Kashmir, Kerala, Orissa, Uttar Pradesh and concluded that Kerala is the state which makes the maximum use of the teaching aids. It is also the state where adequate teachers are trained in the use of teaching aids. Audio cassettes were also used in teaching of music. Schools in Orissa made the use of films relevant to classroom teaching.

Solachi (1991) conducted a study on availability and utilization of education technology in the higher secondary schools of a district in Tamil Nadu. The study revealed that the utilization rate was higher in urban schools as compared to rural schools. Government and aided schools also differed in their utilization rate. The aided schools did a better job. Between boys and girls schools, the boy’s schools utilized educational technology more. Science teachers as compared to Humanities teachers utilized more of non-projected and projected visual aids. They also utilized more of community resource technology.

Anuradha (1991) conducted a study on children’s television-viewing behaviour and its effect on personal and educational development. The objectives of the study were to develop tools to measure television-viewing behaviour and attitude towards television-viewing and to compare parents’ and children’s viewpoints
with regard to television-viewing. Anuradha found that a majority of children disagreed that television affected their school work and that they became disinterested in social work; they felt that television-viewing helped a lot in school work, and they gained more knowledge and consequently got good marks.

**Hubbard (1991)** also pointed out the need for greater involvement of computing skills in teacher education and the potential beverage for instruction not only for science teacher but also for the art teachers.

**Idayavani (1991)** conducted a study on developing a video programme on weathering and work of rivers in physical geography for higher secondary students. The aim was to find out whether the higher secondary students improve their achievement after viewing the video programme and found that the higher secondary students taught by the video method performed better then the student taught by the traditional lecture method.

**Kalimuthu (1991)** conducted a study on developing a video programme on environmental pollution in biology for higher secondary students. The aim was to find out whether the video method is better than the traditional lecture method in teaching the concepts on environmental pollution and found that the higher secondary students improved their achievement on environmental pollution after viewing the video programme.

**Mishra (1991)** conducted a study on role of television in diffusion of have making products among urban housewives. The aim was to determine the extent of exposure of urban housewives to different mass media for obtaining information on home management practices and found that formal and informal mass media sources and their use influenced the adoption behaviour of urban housewives.
Narayanasamy (1991) conducted a study on enrichment of vocabulary of standard VI students through video. The objective of the study was to prepare video lessons for Standard VI students on certain common topics such as weekly market, village, town, and animals. He found that the students learned more words in Tamil language when they were taught by video lessons and the students improved their vocabulary in Tamil language after viewing the video programme on language development.

Pillay (1991) conducted a study on relevance of the course on audio-visual education in the B.Ed. programme to the present day educational technology requirements. The aim was to find out the modern educational technology required of a classroom teacher and to suggest a course on modern educational technology suitable for filling up the gaps identified. The study indicated that though teachers, teach-educators, and heads of schools differed in their requirements, they invariably expected higher educational technology requirements.

Sinnathambi (1991) conducted a study on developing a video programme on Energetics in chemistry for higher secondary students. The aim was to find out experimentally whether the video method is better than the traditional lecture method in teaching the concepts on Energetics and to find out whether the higher secondary students improve their achievement after viewing the video programme on Energetics. Sinnathambi found that the students who were taught by the video method learned more concepts on Energetics in comparison to those who were taught by the lecture method and the students improved their achievement on Energetics after viewing the video programme.

Biswal (1992) conducted a study on educational telecasts. The objectives of the study were to identify areas for research studies in educational television and to identify priorities of research topics and found that researchers are very much essential to enable educational television to attain its desired objectives, study of
the existing system, in terms of the needs of the audience, finding the gaps, if any, and organizing them systematically.

Dharunkar (1992) conducted a study on education in the Marathwada region newspapers. The objectives of the study were to survey educational news coverage and to suggest ways to enlighten the masses for excellence in education. The study indicated that exposing educational scandals had become a regular phenomenon in the regional press. The practice of giving donations to seek admission to private engineering and medical colleges had been also seriously criticized. The Maharashtra Times had published a news feature in the series entitled ‘Mantri Bole College Khule’.

Ghosh (1992) conducted a study on educational reporting on television in Tamil Nadu. The objective of the study was to report quantitatively as well as qualitatively about the nature of educational reporting on television in Tamil Nadu State and found that as regards quality, the UGC programmes were technically sophisticated especially when the foreign made programmes were shown. The Indian programmes on art, history and science were also regarded as good quality programmes.

Harjal (1992) conducted a case study on science broadcasts. The objective of the study was to survey and understand the procedure of preparing the science programmes broadcast by All India Radio and found more than half of the respondents felt that the science programmes improved their knowledge.

Jaiwal (1992) looked television programmes in terms of their matter, response of students, presentation and impact. The aim was to analyze the science educational television programmes in terms of their matter and presentation and found that the majority of programmes (80 to 88%) had followed a logical sequence in presentation; had covered the teaching points adequately, and had used languages appropriately.
Kapadia (1992) conducted a study on the impact of television on students’ learning: an exploration. The aim was to find out the comparative effectiveness of the telefilms and the tape-chart programme and to get the opinion of students and teachers regarding the two media used. The result was that that the telefilm was found more effective in both the groups than the tape-chart programmes in terms of achievement scores as well as retained knowledge.

Desai (1994) studied the impact of graphics and projected aids in teaching-learning process. He identified the usefulness of these two kinds of aids. When opinion of the students was sought they observed that graphics and projected aids helped in learning.

Hoffman (1994) accepted that internet is the largest information net work of the net works uniting people and computer around the globe. It is a powerful communication tool, a giant information super highway system connecting computers and the local, regional and global network together.

Parhar (1994) a study of effect of media on student learning. It was found that out of 20 schools surveyed only 4 were using school television programmes fully. Video and audio cassettes players were not used. No teacher was found to be trained in the use of school television programmes.

Purushothaman and Stell (1994) studied the effectiveness of teacher control interactive video for group instruction, and found that it yielded better academic achievement as compared to the traditional method.

Singh (1994) studied the effectiveness of UGC countrywide classroom programme on models of teaching with interactive mode and without talkback. He found that they group with interactive mode and one without talkback differed significantly. The achievement of the interactive group was
significantly higher than the achievement of the group without talkback.

Sahoo and Mallick (1995) in their study found out attitude of lower primary and upper primary school children’s on educational television programmes. They found no difference, however acquisition with educational television made them favorably disposed towards educational television sex-wise students also differed.

Sahoo (1995) conducted a study on appraising impact of UGC television programmes and found that programmes had +ve impact on learning of students.

Singh (1995) studied the effectiveness of UGC countywide classroom programme on models of teaching with interactive mode and without talkback. He reported that the group with interactive mode and one without talkback differed significantly. The achievement of the interactive group was significantly higher than the achievement of the group without talkback.

Singh (1995) compared the effectiveness of discussion method and traditional method at the B.Ed. level. He reported that the group taught through discussion method performed better than the one target through traditional method. The study touched the soft side of educational technology and was an attempt to probe deeper into technology of education. Active participation helped in both assimilation and retention aspects of learning.

Singh (1995) developed study material relating to video instructional package for teaching environmental awareness. It was field tested and used in three schools in Gujarat, Uttar Pradesh and Rajasthan, and was formed to be very effective and interesting. The study also reported that students enjoyed working though video package.
Chandra and Pandya (1996) studied the effect of video films for imparting legal education and found that students of science stream achieved higher than students form the art steam. Similarly, those students who had studied in English medium schools did better than those who had studied in vernacular schools.

Kapoor and Verma (1997) studied aggression among adolescents in relation to television viewing. It was found that adolescents high on aggression scale viewed television for more hours and with concentration. They also didn’t like to be disturbed while watching television. The study however did not reveal whether television viewing increase aggressive tendencies.

Datta (1998) studied on instructional technology and found that most of the teachers followed direct lecture method and only asked recall questions. They seldom asked students to do something. Some asked students to read from the text. After providing feedback on their behaviour the researcher found that their behaviour improved significantly. He also found improvement in student achievement after interaction analysis was discussed with teachers.

Kumar (1998) observed that teachers are professional but do not know how to use multimedia although they know the importance of educational media. Media utilization was found to be poor. 79% used chalk board, charts and posters. It was a meta analysis of an agriculture university. The study clearly shows that we must not relegate intermediate technologies.

Marthanda (1998) studied on impact of instructional media in changing cognitive and effective behaviour in prevention of AIDS found that the package was effective as compared with lecture method, although it compared with lecture method, although it didn’t change attitude. Audio tapes in Tamil dominated audio tapes, slides and posters prepared in English in changing attitude of people. The study indirectly brought into focus the communicative power of mother tongue or regional language as compared to English which is the
foreign language. The study has implications for language teaching.

Neera (1998) compared the impact of video teaching learning and video aided instructions with the conventional teaching and found that the score of students who were taught with video teaching learning material was maximum and those who learned by video aided instructions got second position and conventional teaching was found to be least effective.

Shah and Patel (1999) try out of multimedia package in the subject of banking for the polytechnic students of Gujrat. The aim was to develop a multimedia package in the subject of banking and to try out the effectiveness of various media components of the developed multimedia package for the students. He found that learning through multimedia package creates a long-lasting effect on the students.

Mishra and Nathpal (2002) pointed out that the internalization of values with successful learning is possible when activities were related to the child's experience.

Behera and Roul (2004) conducted a study on performance of B.Ed. trainees in relation of their gender, academic background and types of institution. The objective of the study was to examine the performance of men and women student teachers, science and arts background. The study was based on 650 student teachers (258 male and 391 female) from CTE and IASE of Orissa in two academic session 1995-96 and 1996-97 and found that the significance difference between the performance of female student teachers and male student teachers.

Krishankumar (2004) conducted a study of effectiveness of teaching through video. The aim was to compare the effectiveness of video, video with teacher support, over the conventional method of teaching science. The study indicated that video group is higher than that of the conventional group, but it is lower than the
video with teachers support group.

**Kaur (2005)** conducted a study on technology and the life of rural masses. The aim was to find out the perceptions about the impact of television programmes on the life of male illiterate, female illiterate, male neo-literate and female neo-literate adults in relation to their viewing time. The sample of the study consisted of 400 rural adults included 200 illiterate (100 male and 100 female) and 200 neo-literate (100 male and 100 female) from two districts of Punjab namely Faridkot and Hoshiarpur. Kaur found that 70% of male and 38% of female illiterate adults agreed that television viewing had improved their life-style and 60% of male and 25% of female neo-literates felt that television viewing had negatively influenced the meal times which indicates that more males than females expressed this view.

**Kashyap (2006)** opined that in the context of global era our everyday lives is saturated with media. Now with the help of multimedia learning has become better and long lasting as compared to the conventional system of teaching.

**Helonjoy (2007)** conducted a study on usage of internet: practices and attitudes of teacher trainees. The aim was to evaluate the self-efficiency of computer technologies and internet use of teacher trainees and to assess their attitude towards computers, computer assisted instruction and use of internet. The findings of the study points to the need for having more refresher or training programme for teachers to get familiar with computer. Sample consisted of 170 B.Ed. students (29 men and 142 women) from Govt. College of Teacher Education, Thiruvananthapuram and found that those who had more access to the computer having more favourable attitude towards using the computer also points to the same.

**Rajesekar and Vaijapuri (2008)** conducted a study on higher secondary teacher’s computer anxiety. The aim was to study the level of teachers’ computer anxiety and found the entire sample of teachers has high level of
computer anxiety. The teachers handling the subjects of the Science group and those who have not attended any computer classes have high level computer anxiety than their counterparts in the Arts group.

Nimavathi (2009) conducted a study on developing study habits through multimedia program. The objective of the study was to prepare multimedia program for the teaching of science at secondary level. The sample was of 180 students of ninth standard in three different schools under state board syllabus in Thiruvannmalai district of Tamil Nadu. No marked difference was between the groups in their study habits at the post test. The students of the experimental group fared better in their study habits than the control group. This shows that the students learning through multimedia fared better in their study habits than the students learning through the conventional method.

Rafeedali (2009) conducted a study on computer-based technology and its pedagogical utility. The aim was to find out the extent of use of computer resources in the teaching-learning process among the higher secondary school teachers. The sample selected for the study was 300 teachers of higher secondary schools from the Malappuram district of Kerala and found that computer is very helpful device for evaluation but only a small percentage of higher secondary school teachers are using computers for evaluation.

Ravichandran and George (2009) conducted a study on attitude of teachers towards learning based on web. The aim was to study that is there any difference in the attitude of male and female teachers, aided and government teachers towards web-based learning. The study was based on a sample of 100 secondary and higher secondary school teachers. They found that male and female, the government and unaided school teachers have more favourable attitude than aided school teachers.
Singh and Mishra (2009) conducted a study on effectiveness of e-learning: an experimental study. The aim was to compare performance in theory courses, namely, essentials of educational technology and management of B.Ed. students provided interest facility along traditional teaching and B.Ed. students taught through simple traditional method. They found that e-learning may be effective in developing cognitive ability of pupil teachers.

Antonyswamy (2010) conducted a study on awareness of internet and competence among high school students and teachers. The aim was to find out the extent of awareness and competence of Internet among high school students and high school teachers. The study was based on a sample of 86 students from Mahiti Sindhu. The study showed no marked difference between girls and boys of high school in case of awareness and competence to use Internet.
2.4 TEACHING ABILITY

Teaching ability stresses on effectiveness rather than efficiency. Efficient knows the job but Effective does the job. To make teaching learning process easy we need competent and able teachers.

Gupta (1977) focused in his article role of education programme in teacher effectiveness that teaching ability is the more essential availability required for an effective and successful teacher.

National Policy on Education (1986) has also recommended that norms of accountability should be strictly followed with incentives for the good performance and disincentives for the non performance.

Das and Jangira (1988) examined the effect of intervention training in the integration of the Teaching ability of student-teachers. The aim was the vicarious integration and summative, additive and diode model of integration of teaching skills. The study indicated that out of the four colleges of education which compared the summative model of integration intervention with vicarious integration, the differences in the mean gain scores were found to be significant only in the case of one college. It was also found that the only institution which tried out diode skill integration intervention revealed significant mean gains on the general Teaching ability of the student-teachers.

Singh (1989) conducted a study on relative effectiveness of two training strategies in developing Teaching ability and attitude towards teaching among student-teachers. The aim was to compare the relative effectiveness of two strategies in developing competence and attitude towards teaching among students-teachers and concluded that both the training strategies were markedly effective in developing theoretical understanding of micro teaching, general Teaching ability and attitude towards teaching.
Kumaraswamy and Sudha (2004) conducted a study on competency of teachers of differential organizational climates. The objective of the study was to examine the effect of the organizational climate on the competency of primary and high school teachers. They found that teachers working in open, controlled closed climates were found to be more competent in the interactive dimension than the teacher of paternal climate teachers of open climate were found to be better in this competency than the teachers in ‘closed’ climate and also of the autonomous climate.

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) conducted a study on value and teacher competence: a co-relational study. The aim was to study the value pattern of the competent and incompetent teachers. The study was based on a sample of 60 secondary schools of Banswara district and found that there is no marked difference between the value pattern of competent and incompetent teachers of secondary schools.

Kalia (2006) focused that elementary teachers and elementary principle found teacher preparation programme in Texas doing the more effective job in the competencies of the teaching method of strategies and students level.

Sabu (2010) conducted a study on in-service training programmes and Teaching ability of teachers. The objective of the study was to understand the Teaching ability of teachers with regard to in-service training programmes, age, gender and type of school. The sample selected for the investigation comprised 631 teachers of 24 secondary schools in Kollam district of Kerala. Sabu concluded that there is no significant difference in Teaching ability of teachers with regard to number of in-service programmes attended, age, gender and type of school.
2.5 CONCLUSION

By accumulating all the studies, which are discussed in foregoing pages of this chapter, investigator feels that in the present scenario when every aspect of education needs a drastic change to suit changing development of time, it is very much necessary to increase teachers’ ability. In the present study researcher has to find out the ways of improving teaching ability of prospective teachers by the use of micro teaching and multimedia.

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

2.5.1 Microteaching

In any teaching programme, micro teaching has a great importance. Micro-teaching of foreign countries is different from our country. There have been some changes according to Indian condition. India being a poor country cannot use the expensive educational materials like-America, England or other countries. In foreign countries for evaluation of teaching training material, audio, video, tape or C.C.T.V. But in India all these functions are performed by friend, pupil teachers who analyze teaching skill and gives the feedback. In foreign countries, the school students are the students for micro-teaching, but in India friends and colleagues act as a students. In India micro-teaching can be conducted in a minimum time, with a small topic, by using single one skill, to a small group of pupil-teacher. In India it is a new technique. Here the feedbacks are given by the teachers this is known ‘Supervisor Feedback’. Sometimes the friends of the pupil-teacher give the feedback. This is known as a ‘Peer Feedback’. Many times the entire micro-lesson is taped and after teaching the pupil-teacher, sees it and gets feedback. This is known as ‘auto Feedback’. In micro teaching, the pupil-teachers are given opportunity to improve their lesson in a
systematic feedback. With the help of this method the teachers are trained in a simplified and comfortable situation. The credit of developing the Principles of Micro-teaching in India goes mainly to Prof. R. C. Dass and Balkrishna Passi: In 1975, NCERT, Educational Department of Delhi, CASE Baroda and Education Department of Indore University, jointly worked on this project. In our country the shape of micro-teaching is flexible and practical. Micro-teaching programme can also be carried on in the absence or lack of laboratories, equipments are materials. If we do not have special place, then also micro-teaching programme can be conducted. The base of Standard of Teaching is the capability and efficiency of the teacher. The teacher use various types of technique to improve their teaching out of this micro-teaching is the main and important technique. With this method, the pupil teacher can practice teaching in his own training institution. The main benefit of micro-teaching is that the pupil-teacher focuses on only one skill at a time in their teaching programme. Immediate feedback is always effective as in micro-teaching friends or pupil-teacher provides immediate feedback. That is very helpful in improving the teaching skill. Normally we divide the subject matter in different units and teaching time is also reduced and numbers of students are also minimized. N.L. Gage told that teaching skills are the special instructional activities and methods that a teacher uses in class-room. These skills have different stages by using them a potential teacher can improve their teaching performance. In micro-teaching teachers use various skills and get the immediate feedback and they can improve their performance. Skills like Probing Questioning, Skill of Stimulus Variation, Skill of Explaining, Use of inappropriate vocabulary, vague words and phrases, Skills of illustration with examples, Skill of Reinforcement, Skill of class-room management, Demonstration Skill, Achieving closure.


2.5.2 Multimedia

Teachers used different media (Dasgupta, 1988; Mehra, 1988; Mohanty, 1988;)

Media is undergoing a fast change in the present time. We sense the world around us by our five sense organs. Our sense organs i.e. eye, ear, nose, tongue and skin give us the sensations of seeing, hearing, smelling, taste and touch respectively. Any changes in the environment affect our sense organs. These stimuli may be change in the visual field, sound, smell, taste and temperature etc. We are able to attach some meaning to our sensations i.e. when we are able to name the colour, shape, size, sound and smell etc. We perceive that change in the environment. These perceptions add to our pre-existing store of knowledge and learning takes place. Perceptions stand for facts or data with which we think and further organized in the form of concept, generalizations and principles. Hence for better learning our perceptions should be clear and should be in as many forms as possible and teaching aids do it.

A multimedia aid is any material aid that affects our sense organs and helps in making learning meaningful and interesting. A teaching aid can be any material aid that can affects any of the sense organs whereas an multimedia aid affects the auditory and visual sense organs. Hence for better learning it becomes necessary that things should be clear at perceptions level. For better perceptions objects, events and phenomena should be sensed in as many ways as possible. Teaching aids help us in
gaining information through multisensory experiences such as seeing, hearing, tasting, smelling and working with them and this can be achieved by the use of visual, auditory, multimedia and activity aids.

Further, any change in behaviour is said to be learning and this change may be in the store of knowledge, value system possessed by the individual and neuro-muscular co-ordinations. Learning through different sense organs is more durable than by words only. It is estimated that about 86% of our knowledge is gained through visual and auditory sense organs which suggest more stress on multimedia perception. It has also been found out that about 20% more is learnt by the use of multimedia aids and there is about 38% more retention over period of time. Lower stages of school children learn and retain more from concrete experiences.

The importance of multimedia of teaching aids in communication and learning has been recognized from early periods. Greeks and Romans are reported to have used words, picture and symbols to convey their thoughts and information. Rousseau also discouraged use of word only in education and stressed that surrounding of the child should also be taken into consideration. He suggested a shift from teacher centred education to child centred education. Froebel suggested that children should be provided with doing opportunities as learning by doing is quite significant in gaining knowledge.

Piaget’s developmental stages i.e. Sensor motor, Pre-operational, Concrete Operational and Formal Operational and eight types of conditions of learning suggested by Gagne i.e. Signal Learning, Stimulus-Response learning, changing, Verbal Association, Multiple Discrimination, Concept Learning, Principle Learning and Problem Solving, suggest devising/selection of teaching aids according to the level of students and sequencing these multi-sensory experiences in such ways that maximum learning may take place. A wise selection of teaching aids involves consideration about the levels of students, nature of subject matters, resources at the disposal of the teacher and the methods and technique adopted by the teacher so that
maximum teaching learning takes place. Today’s teaching aims at transmission of exponentially increasing knowledge to even earlier stages of students which in turn require structuring of experiences to the students in most effective way. Some modern teaching aids help in preservation, transmission and furtherance of knowledge and hence form an important part of Educational Technology.

NEED AND IMPORTANCE OF MULTIMEDIA EDUCATION

Keeping in view the above discussion about the importance and utilization of teaching aids it seems to be quit important that teachers and teacher educators should be given multimedia education. Besides being aware of the importance of teaching aids in the process of teaching-learning, a teacher should also be able to effectively utilize teaching aids.

Multimedia education gives the teachers knowledge about the process of learning, the knowledge about the nature of learning, the role of sense organs in gaining knowledge and the importance of making learning experiences multisensory by using teaching aids.

Multimedia education imparts the teacher knowledge of different multimedia i.e. different types of teaching aids which can be used from time to time, which help the teacher in communicating the subject matter to his students in a more meaningful way.

Teachers should also know about the proper selection, use and preservation of teaching aids. A teacher should be able to judge what teaching aid he should use in a particular teaching-learning situation. Multimedia education helps the teacher wise selection of teaching aids out of the available ones and optimum utilization of selected aids in specific teaching-learning situations.
There have been a lot of innovations in the field of multimedia education. Use of projected material requires a teacher to handle different types of projectors such as slide projector, epidiascope, film projector and overhead projector. The teacher has also to use teaching machines, television and computers, which requires specialized training. A teacher should be aware of operations of different hardware used in the field of education and he should also have some training to properly handle these devices and multimedia education helps the teacher in this field.

Teaching also demand preparation of certain teaching aids on the part of the teacher. He may be required of prepare charts, picture and other means of duplications. Multimedia education helps the teacher in construction and improvisation of teaching aids and duplications of different forms of information which he has to use in his classroom teaching.

A teacher should know about organizing a multimedia library, museum, aquarium, vivarium, exhibition and fairs etc. so that optimum utilization of available resource can be undertaken. Multimedia education helps the teacher in acquiring these organizational skills.

In order to give the students first hand experiences a teacher has to organize field trips and excursions from time to time. He may be required to take the students to some industrial establishment, zoo, botanical garden, planetarium and other field trips. A teacher should be able to provide leadership during these occasions and manage such trips. He is also required to supervise the hobbies, club activities and project work of the students. Multimedia education enables the teacher to organize and manage out of the class activities.

A teacher should be aware of different sources from where he can collect/purchase/borrow teaching aids required for his purpose and multimedia education also helps in making him resourceful.
IMPORTANCE OF MULTIMEDIA AIDS

Multimedia aids have wide significance in teaching-learning situation. The importance of these teaching aids can be justified due to a number of their characteristics.

**Involvement of maximum senses:** All new knowledge comes through the sense organs. When teaching aids are used, the organs that sense seeing, hearing, touch, smell and taste are utilized and provide more than one avenues for the incoming knowledge. Use of teaching aids in teaching utilizes more than one sense organs in receiving knowledge.

**Utilize maxims of teaching:** Use of multimedia aids helps in better communication and utilizing the maxims of teaching like teaching from concrete to abstract’, ‘simple to complex,’ ‘known to unknown’, and learning by doing.

**Attention Compellers:** New things, colour objects and moving things catch attention readily and hence use of these forms of teaching aids helps to sustain ate attention of learners to the things been taught.

**Motivating force:** Use of multimedia motivates the students for further learning. New, attractive, moving things, demonstration arouse curiosity in the students and leads to monotonous teaching were attention of the students gets lost after some time or they feel bored. Use of multimedia reduce the proportion of verbal taught and breaks the monotony in teaching.

**Helping in clearing of concepts:** When things are allowed only, the pupil teacher develop images of the things being discussed which are based on their previous experiences but when a thing is reality is shown they create real mental
image of the things. If we are taking about a animal, its shape, size, colour, behaviour, texture, adaptations to its environment may lead to the development of different images.

**Best Alternate for Direct Experience:** Our knowledge, experiences and thinking depends upon our experiences. With the help of multi-media we can get a direct experience as the things may be too small or large that may not be bring in to class room.

**Meeting Inadequate Resources:** Use of film shows, radio and television lesson as well as teaching can meet the inadequacy of resources in teaching. Radio and television lessons can prove good quality teaching even in rural areas if properly planned and delivered. Hence with the help of multi-media we can train the teachers so that they can teach the students effectively and make their teaching effective.

**It Increase Students Participation in Teaching:** Involving the students in teaching is a good teaching skill. With the help of multi-media we can train our prospective teacher in an effective way. When students are involved in teaching they felled motivated. The problem of indiscipline will also remove from the class. Pupil-teacher can becomes perfect teacher by the use of multi-media. Demonstration is also a effective part of teachers training. Trained teacher can demonstrate the lesson by using multi-media.

**Helps in Development in Scientific Attitude:** When actual things, their representations or demonstrations are organized before the students they intend more to believe in cause and effect relationship which leads in their development of scientific attitude and they are not easily carried away by superstition and supernatural stories. Habit of working with the things systematically develops scientific method of working in the students. Use of multimedia in teaching situations also makes teachers more confident in teaching. Multimedia also helps presenting the lessons systematically.
Help in Better Learning and Retention: - Things taught by using multimedia lead to better learning and retention of learned experiences for longer time. Magic lantern, epidiascope, slide projector, film strip projector, opaque projector, overhead projector, radio, television, radio vision, record player, tape recorder and motion picture projectors, teaching machine and computers are some of educational hardware. By these more students with less expenditure and time can be educated.

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.

2.5.3 Teaching ability

Teaching ability stresses on effectiveness rather than efficiency. Efficient knows the job but Effective does the job. To make teaching learning process easy we need competent and able teachers. (Natraj, 1984; Dass and Jangria, 1988; Singh, 1989; Basa, 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.

2.5.4 Teaching Skill

Teaching skills has relationship with teaching ability (Brown, 1981; Rusbult and Farell, 1983; Chathley, 1984; Gandhi, 1992; Gor, 1992; Thukral and Madan, 2003; Singh, 2005).