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INNOVATIONS IN TEACHING

MICRO TEACHING:

HISTORICAL DEVELOPMENT:

It was Keith Acheson a research Scholar of the Stanford University who discovered that video-tape recorder could be used to provide feedback of a demonstration lesson. He along with other students of Stanford University started using video-tape recorder for modifying the behavior of teacher trainees. After some time it was Dwight Allen (1963) of Stanford University who coined the term Micro-Teaching.

In India it was introduced by D.D. Tiwari in 1967 of Government Central Pedagogical Institute Allahabad. In 1970 G.B. Shaw experimented with Micro Teaching at M.S. University Baroda. Then the Technical Teachers Training Institute, Madras introduced Micro Teaching to train the Technical Teachers. In 1974, Dr N.L. Dosajh used Micro Teaching as a teaching device in Teachers Training Institute Chandigarh.

CONCEPT:

Micro Teaching is a training concept that can be applied at the pre-service and in-service stages in the professional development of teachers. Micro teaching is a
scaled down teaching in which we reduce the complexities of actual class room in terms of size of the class, duration of lesson, range of activities, teaching a single topic and practicing one skill at a time. If possible Micro Lesson is video-taped or tape recorded. Feedback is provided immediately after the completion of the lesson.

DEFINITIONS:

1. D.W. Allen, “Micro Teaching is a scaled down teaching encounter in class, size and time.”
2. Passi, B.K, “It is a training technique which requires pupil teachers to teach a single concept using specified teaching skills to a small no. of pupils in a short duration of time.”
3. L.C. Singh, “Micro Teaching is a scaled down teaching encounter in which a teacher teaches a small but to a group of 5 pupils for a small period of 5 to 20 minutes. Such a situation offers a helpful setting for an experienced or inexperienced teacher to acquire new teaching skills and to refine old ones.
4. Clift, “Micro Teaching is a teacher training procedure which reduces the teaching situation to simpler and more controlled encounter achieved by limiting the practice teaching to a specific skill and reducing teaching time and class size.”

CHARACTERISTICS:

1. It is a teachers training technique.
2. It is a micro in the sense that it scales down the complexities of actual /real teaching:
   a. Out of contents, a single concept is taken up at a time.
   b. Only one skill is practiced at a time.
   c. Size of the class is reduced to 5 to 10 students.
   d. Duration of the lesson is reduced to 5 to 10 minutes.
3. It is highly individualized training device.
4. Feedback is provided immediately after completion of the lesson.
5. It is a device for preparing effective teachers.
6. The use of video tape or cctv makes the observation very objective.
7. Selection of one skill at a time.
8. Mastery over different teaching skills.

PROPOSITIONS/ ASSUMPTIONS OF MICRO TEACHING:

In the words of Allen and Ryan Micro Teaching is an idea at the core of which lie 5 essential propositions:

1. REAL TEACHING: Micro Teaching is real teaching. Although the teaching situation is a constructed one in the sense that teacher and students work together in a practice situation, nevertheless, bonafied teaching does take place.
2. REDUCING COMPLEXITIES: Micro Teaching lessens the complexities of normal class room teaching. Class size, scope of content, and time are all reduced.
3. FOCUS ON TRAINING: Micro Teaching focuses on training for the accomplishment of specific tasks. These tasks may be the practice of techniques of teaching, the mastery of certain curricular materials, or the demonstration of teaching methods.
4. INCREASED CONTROLLED OF PRACTICE: Micro Teaching allows for the increased control of practice. In the practice setting of micro teaching, the rituals of time, students, methods of feedback and supervision, and many other factors can be manipulated. As a result, a high degree of control can be built into the training program.
5. EXPANDING KNOWLEDGE OF RESULTS: Micro Teaching greatly expands the normal knowledge of results or feedback dimensions in teaching. Immediately after teaching a brief micro lesson, the trainee engages in a
critique of his performance. To give him a maximum insight into his performance, several sources of feedback are at his disposal.

**PHASES OF MICRO TEACHING:**

Clift and Others (1976) have suggested 3 phases of micro teaching procedure:

a. **KNOWLEDGE ACQUISITION PHASE:** At this stage, the student teacher tries to get the knowledge of the skill to be practiced. He reads relevant literature concerning that skill. He is also made to observe a demonstration lesson in which that skill figures prominently. The person who demonstrates the skill is an expert of the subject and the skill. By observing that lesson, the teacher under training gets theoretical as well as practical knowledge of that skill.

b. **SKILL ACQUISITION PHASE:** The student teacher acquires the skill in hand through a lot of practice. He prepares the micro lesson, teaches it to have practice and then through feedback he evaluates his performance. Then he replans the lesson with modifications and improvement and then reteaches that lesson. Again there is re-feed back in order to enable him to have mastery of the teaching skill. In this way, different skills are learnt by the student teacher one by one.

c. **TRANSFER PHASE:** At this stage, teacher integrates the different skills. Instead of artificial situation he teaches in the real classroom where the no. of students are full class. His lesson is of 30 to 35 minutes duration and there he tries to integrate all the skills for which he made efforts in phase 1st and phase 2nd.
STEPS OF MICRO TEACHING:

The micro teaching procedure involves the following steps:

1. DEFINING THE SKILL:
   
   A particular skill is defined to trainees in terms of teaching behaviours to provide the knowledge and awareness of teaching skills.

2. DEMONSTRATING THE SKILL:
   
   The specific skill is demonstrated by the experts or shown through video-tape or film to the teacher trainees.

3. PLANNING THE LESSON:
   
   The student teacher plans a short (micro) lesson with the help of his supervisor, in which he can practice a particular skill.

4. TEACHING THE LESSON:
   
   The pupil teacher teaches the lesson to a small group of pupils (i.e. 5 to 10 pupils). The lesson is observed by supervisor (teacher) or peers or video taped or audio taped or televised at CCTV.

5. DISCUSSION:
   
   The teaching is followed by discussion to provide the feedback (suggested improvements) to the trainee. The video tape or audio tape may be displayed to observe his own teaching activities by the trainee. The awareness of his own teaching performance provides the reinforcement to the pupil teacher.

6. REPLANNING:
In the light of the discussion and suggestion the pupil teacher replans the lesson with improvement and modification in order to practice the small skill effectively.

7. RETEACHING:

The revised lesson is retaught to another small group of students of same class for the same duration to practice the small skill effectively.

8. REDISCUSSION:

The reteaching is again followed by discussion, suggestion and encouraging the teacher performance. Thus the feedback is again provided to the trainee.

9. REPEATING THE CYCLE:

The “teach-reteach” cycle is repeated till desired level of skill is achieved.

MERITS:

1. It is an effective device for modifying the behaviour of the teachers under training.
2. It is highly individualized type of teacher training.
3. It is useful for developing efficiency in pre-service and in-service teacher education programmes.
4. It reduces the complexities of actual class room teaching.
5. It focuses attention on teaching behaviour to modify and improve in the desired direction.
6. Close supervision is possible.
7. It develops a lot of confidence in the teachers.
8. It helps in acquiring various types of skills which ultimately form the basis of successful teaching.
9. It helps in sorting out problems related to classroom teaching.

DEMERITS:
1. It is a very costly device.
2. It wastes a lot of time of the student.
3. It provides opportunities for developing only a few skills, but in reality teaching requires more than these skills.
4. It disturbs the existing timetable.
5. In 5 to 10 minutes a very small content is presented which separates or breaks the lesson.

ROLE OF THE SUPERVISOR IN MICRO-TEACHING:

The micro-teaching supervisor is a teacher. His role is to increase and refine performance to the skills that serve as the objectives. The responsibility of the supervisor is two-fold:

1. DEVELOPING ABILITY TO PERFORM A SKILL:
   The Supervisor must help the trainee to develop the ability to perform a skill. With regard to this role the supervisor discharges the following functions:
   - The supervisor helps the trainee in the discrimination of the skill and reinforces his performance of it.
• He helps the trainee to understand the behaviors that constitute the skill and to become sensitive to the cues that signal when the skill should be performed.

• When the trainee performs the skill, or begins to approximate the performance of it, the supervisor reinforces his behaviour.

• The supervisor helps the trainee see what he should do, and tells him when he has done it.

2. TO UNDERSTAND THE APPLICATION OF SKILL:
The supervisor help the trainee to understand when the skill should be applied. This role of the supervisor relates to the application of skills. Good performance depends on when and where the skills are used. The supervisor, then, must help the trainee in making these professional decisions.

3. WORKING WITH TRAINEES:
In micro-teaching, each supervisor is assigned between 5 to 10 teacher trainees at the start of the session, and he works with this group.

4. SUPERVISING THE LESSON:
The supervisor supervises the lesson. He has to note the improvements which are to be made by the pupil-teacher in the presentation of the lesson.

5. EVALUATING THE LESSON:
The supervisor has to evaluate the lesson and to give feedback.

SKILLS OF MICRO-TEACHING:
Micro-Teaching is used for developing certain teaching skills. A teaching skill is defined as a set of teacher behaviours which are especially effective in bringing about desired changes in pupil teachers. Some of the major skills of micro-teaching are as under:

1. SKILL OF SET INDUCTION.
2. SKILL OF STIMULUS VARIATION.
3. SKILL OF REINFORCEMENT.
4. SKILL OF USING BLACKBOARD.
5. SKILL OF PROBING QUESTIONS.
6. SKILL OF EXPLAINING.
PROGRAMMED LEARNING:

Programmed learning or programmed instruction is one of the most important innovations in the field of education. Programmed learning represents a highly individualized and systematic instructional strategy for classroom instructions as well as self-learning. It works wonderfully in the case of correspondence courses being run in the open universities of the country. The programme can be prepared by the expert and put to use for teaching purposes.

Programmed learning means learning by preparing a programme. This technique was proposed by B.F.Skinner in 1958. Programmed learning is a sequence of small steps of instructional material (called frames). In this student is active and moves at his own pace and is provided with immediate knowledge of results. It moves the student from simple concept to complex concepts, principles and understandings.

DEFINITIONS:

1. Edgar Dale: Programmed learning is a systematic, step by step, self-instructional programme aimed to ensure the learning of stated behaviour.
2. Smith and Moore: Programmed instruction is a process of arranging the material to be learned into a series of sequential steps. Usually it moves the students, from a familiar background into a complex and new set of concepts, principles and understanding.
3. J.D.Williams: Programmed learning may be defined as “the arrangement of material to be learned into an orderly series of learning experiences, in each of which material is presented to the learner, a response as elicited and feedback given”.

CHARACTERISTICS:

1. It’s highly individualized i.e. one person learns at a time.
2. Each step in the learning process is followed logically.
3. The students make progress at their own pace. The rate of accomplishment of one student is established by his performance alone.
4. There is provision for checking of students answers immediately. If the answer is wrong, the student comes to know about the error and why it’s so.
5. The students are required to be active at each step.
6. Students overt response is needed at every step. That way they can be readily observed, checked and effectively controlled.
7. It maximizes the rate and depth of learning, foster understanding and enhance the motivation of the students.
8. There is emphasis on the interaction between the learner and the programme.
9. It is self-administrative.
10. It is very systematic and sequenced.
11. Teacher acts as a guide and helper.
12. The subject matter is presented in small bits or steps called frames.

PRINCIPLES OF PROGRAMMED LEARNING:

a. PRINCIPLE OF SMALL STEPS:
   Each programme presents the material to be learnt in small steps. The students are able to learn better if material is presented to them in small steps. We learn better in small steps because the possibility of committing errors is reduced considerably.

b. PRINCIPLE OF ACTIVE RESPONDING:
Programmed learning is also based on the principle of active responding. In it learner remains active throughout. Whatever matter is presented to him in small steps he goes on responding to it actively.

c. PRINCIPLE OF IMMEDIATE REINFORCEMENT:

The students learns best if his answer is confirmed immediately. In programmed learning the moment the student gives the response, its correctness or otherwise is conveyed to him immediately.

d. PRINCIPLE OF SELF PACING:

In programmed learning individual differences of the learners are well recognized. They can work at their own speed slowly or quickly as they like. The gifted children can learn things at a quicker speed where as the backward children can go on slowly.

e. PRINCIPLE OF EVALUATION:

In programmed learning student is tested continuously. Continuous evaluation is another fundamental principle of programmed learning. It helps students to learn and grasp the material given in each frame. The purpose of this arrangement is not to test the student but to improve the quality of programmed materials through checking the no. of errors at each step.
STYLES OF PROGRAMMING:

A few styles of programming are briefly explained here below:

1. LINEAR PROGRAMMING:

Linear programming is also known as extrinsic style of programming. It was developed by B.F. Skinner and his associates in 1954. This is also known as Skinnerian style of programming. It is based on the assumption that human behaviour can be shaped or conditioned gradually step by step with suitable reinforcement for each desired response.

In the linear programming/style the subject matter is divided into small steps. Each step is called a frame. Each frame requires the student to do something. When the student has given his response, he confirms it with the correct response provided in the programme. There is provision for self pacing. The elements of linear programming are:

- Information given in small steps.
- Active responding by the student at each step.
- Immediate knowledge of results.
- Self-pacing.

2. BRANCHING PROGRAMMING:

Branching programming is also known as intrinsic style of programming. It was originated by an American Psychologist Norman A. Crowder. He defined branching programming as a programme which adopts to the needs of the students without the medium of extrinsic device such as a computer. The frame size and the amount of information given is larger than that of the linear programme. The student is exposed to a short discussion of material to be learnt. This is followed by multiple-choice questions. If the student chooses the correct answer he is told that his answer is right and he is led to the next learning item. If his answer is incorrect he has to go through a discussion where he is told what was
wrong with the answer. He is then taken to the original item and allowed to select again the right response.

3. **MATHETICS:**

Mathetics programming has been propagated by Thomas F. Gilbert. In the words of Gilbert, “Mathetics is defined as the systematic application of reinforcement theory to the analysis and reconstruction of those complex behaviour repertoires usually known as subject–matter mastery of knowledge and skill”.

Major emphasis in mathetics is on mastery of behaviour through retrogressive or backward chaining. The retrogressive chaining is basically teaching the mastery step first.

In mathetics style, an exercise is the technical unit of learning instead of a frame of a linear style. There is no restriction on the size of the exercise. In fact the size of the exercise is kept according to the needs and requirements of the student.

Mathetics may be applied to any subject, but it is more suitable for teaching skills. It is a complete training system that gives the programmer:

a. A guide for determining what to teach.
b. A basis for making teaching strategy decisions.
c. A detailed procedure for constructing a programme.

**SIMULATED TEACHING**

Simulated Teaching is a teacher training technique which was developed by Cruickshank in 1968. It is denoted by several terms such as Role Playing, Artificial Teaching, Pilot Training, Laboratory method, Clinical method and inductive scientific method. It is one of the techniques being used currently in India as well
as in other Countries for the modification of teacher behaviour. Simulated teaching is an artificially arranged teachers training technique which helps the student teachers to learn the art and techniques through role playing. The dictionary meaning of simulation is the act or process of pretending or role playing. It is a kind of imitation if a particular appearance or form. When a male child puts the beard and moustache on his face and the little girl serves the dishes to him they are said to simulate i.e imitate the acts of their parents. Through such simulated playful acts the children get the opportunity of training them for future life.

DEFINITIONS

1. Harman’s view: “Simulations contain the important parts of, but not all of reality, Simulations do not have to look like the real life counterpart, but they do have to act like the real things”.
2. Fink: “Simulation is the controlled representation of reality”.
3. Webster’s Dictionary: they defined simulation as “Giving the appearance or effect of, to have characteristics of”.

PARAMETERS OF SIMULATION:

Prof. Tansey had given us 3 parameters of simulation.

1. Stylized simulation: in stylized simulation degree of participation is represented. Road maps, weather maps, graphs are the examples of stylized simulation.
2. Games: Games are marked by degree of competition. They are governed to some extent by rules which may be modified or even changed radically. Chess games and other games are the examples of Games simulation.
3. Free drama: in free drama degree of structure is taken into consideration. Free drama is the kind of simulation that might well be used in the classroom for such purposes as moral education.
TYPES OF SIMULATION:

Identity simulation: in identity simulation, the actual system is used as a model.

Replication simulation: in replication simulation, an operational model of the system is used in its usual environment.

Laboratory simulation: in laboratory simulation, replication is employed in the laboratory, with features of the real system represented.

Computer simulation: Computer simulation is an abstract representation of the real system with the use of a computer.

Analytical simulation: Analytical simulation uses mathematical models and attempts to get solution by analytical means.

ORGANISATION OF SIMULATED TEACHING:

The organisation of simulated teaching involved 5 to 7 student teachers who are to practice social skill. The one who teaches is called an Actor, two students assume the role of Observers and the trainees who play the role of students are called Foils whose no. Varies from 2 to 4.

CHARACTERISTICS OF SIMULATED TEACHING:

1. PLANNING: Simulated teaching requires systematic advance planning to enable the students to display the desired behaviour(skills) after going through the training. Planning should be done while keeping in view the educational needs, interests, attitudes and pre-requisites of target group.
2. **INVOVLEMENT**: the students are required to actively participate in all the activities. Simulated teaching demands a firm commitment and supportive behaviour on the part of the students.

3. **FEEDBACK**: the quality and frequency of feedback plays an important role in simulated teaching. It brings the desired change in human behaviour. Simulated teaching allows the students to experience the consequences of their activities more quickly than real life situations. The immediate feedback thus received has more impact on their learning.

4. **CONTROL**: simulated teaching is based on the system approach to achieve the specific objectives laid down before the students. Simulated teaching allows the teachers/trainees to determine what the students are to learn and in what sequence and under what conditions. To ensure full control over their learning, simulated teaching can be set in which the students solve or are encountered to relatively minor problems before they face those that are more serious and require greater skills and experience.

5. **TIME**: Simulated teaching is goal oriented and flexible method of teaching. Depending on the objectives to be achieved time can be condensed or expanded, or both. If the objectives to be achieved are complicated or the skill to be acquired is difficult, simulated teaching can be expanded over a number of sessions.

6. **SAFETY**: Simulated teaching minimises the risk in performing any activity in any artificial or mock or laboratory situation. Experience of performing operation of a patient, flying and driving an aircraft, fighting in a war and similar dangerous or risky situations can be given to them by providing artificial situations and mock trials.

**STEPS OF SIMULATED TEACHING**: Flanders recommends the following steps:

1. **SELECTING PUPIL TEACHER'S**:
A small group of pupil teachers is selected. Letters A, B, C, D etc. are assigned to each person in the group. Role assignments are rotated by letters so that each individual has a chance to be an actor or observer.

2. SELECTING AND DISCUSSING SKILLS:
   The skills to be practiced are selected and discussed. Topics of conversation that fit the skills are also suggested. Select one topic for the first session and decide on additional topics so that each individual has a chance to select one topic that makes him comfortable in his role.

3. DECIDING CONSIDERATIONS:
   Considerations as to who will start the conversation, who will intervene, who will stop the interaction and when it will be stopped are decided. Thus sequence of activities are to be determined.

4. DECIDING PROCEDURE OF EVALUATION:
   The procedure of evaluation, kind of data to be recorded and the method of recording etc. are decided.

5. CONDUCTING PRACTICE SESSION:
   First practice session is conducted and the actors is provided with feedback on his performance. If necessary the procedure of the second session is changed in order to improve the training procedure.

6. PREPARED TO CHANGE THE PROCEDURE:
   If need arises, one should be prepared to change the procedure and the topic and move on the next skill so as to present a meaningful challenge to each actor to keep his interest as high as possible.

ADVANTAGES:
1. Stimulated teaching is a device for motivating students.
2. It provides opportunities to student teachers to study and analyse critical teaching problems.
3. Simulation establishes a link between theory and practice.
4. Participants recognize their own progress by various feedback methods.
5. Simulated teaching serves as a social laboratory. They can exercise the social skills acquired.

**DISADVANTAGES:**

1. It is time consuming.
2. It is difficult for beginners.
3. Not useful for all subjects.
4. It requires a lot of preparation on the part of the teachers.
5. It is very costly.