UNIT 1: METHODOLOGY OF TEACHING AND LEARNING: LECTURE, DISCUSSION METHODS AND INDIVIDUALISED INSTRUCTION

INTRODUCTION

How should we educate our children? What methods should we use? These are questions, which have been dealt with by several scholars, since Plato. Man has through the ages educated his young ones through various methods. The assumption then, was that, once the learner had listened to the teacher he had learned. From ancient times, methodology, (methods of teaching and learning) had been taken as component, which makes up the process of education. Many educationists and psychologists had conducted series of researches in the fields of methodology, teaching and learning. The three aspects had always been interrelated. This unit discusses extensively on these concepts. It goes further to expound on lecture, discussion methods of teaching. A presentation on Individualised Instruction, its characteristics and why it is not being used in Nigeria is also made.

OBJECTIVES:

By the end of this unit, you should be able to:

1. define methodology, teaching and learning and explain its principles, functions, and process;
2. define the lecture and distinguish it from discussion method;
3. determine how to plan and when to use each of them;
4. list at least three advantages and three disadvantages of each;
5. define and explain the objectives of individualized instruction;
6. point out the characteristics of individualized instruction and how it can be used to enhance learning;
7. enumerate the reasons why individualized instruction is not in use in our country and give some suggestion as to its use.

HOW TO STUDY THIS UNIT

1. Read through the unit once. You should note the important ideas as you read. Also as you read, look up unfamiliar words in your dictionary.
2. Then go back and study the unit step by step as arranged. Attempt all the activities given.
3. Try to observe all the rules stated. Do not forget to attempt the unit assignment. If you carry out the above instruction, then you will benefit from this unit.

THE MEANING OF METHODOLOGY, TEACHING AND LEARNING

(a) **Methodology**: The term methodology is the study of methods, and in this case, the methods of teaching. Many of the methods of teaching that we know of, have their origins in the various theories of learning. Methodology is the study and practice of various methods of teaching. This implies that methodology is both the study of different methods and the systematic means of presenting subject matter and learning experiences. The study of the methodology covers not only the philosophy of methods, but also the influence of psychological principles involved in learning. The student teachers are taught about teaching aids and their possible uses, and the advantages and disadvantages of the various methods of teaching.

(b) **Teaching:** Teaching is an occupation (the job we do); it is an enterprise (a cluster of activities a teacher may be engaged in during a specific time period); it is an act (i.e. the very act of teaching itself, explaining, reading, writing etc). The purpose in differentiating the concept of teaching in this way, is to provide a conceptual means for separating teaching acts from non- teaching acts, and more importantly, to separate a basic sense of teaching from the many kinds of things one might do to get people to learn, like indoctrinating, conditioning, etc.

(c) **Learning**: Learning refers to a process, which produces series of changes in human behaviour and experiences. It involves the acquisition of new ideas, experiences, knowledge, skills and values which ultimately make the learner change his behaviour. To make a success of various methods of teaching, the teacher should observe certain principles.

1. Understand both the theory and practice of methodology.
2. Use the methods to teach according to the nature of the topic, the subject, the pupils, the available resources in the school as well as the location of and the prevailing situation in the environment.
3. Consider the individual differences of the pupils..
4. Use his knowledge of child psychology and personality development to determine the teaching procedure and evaluation technique to be used.
5. Develop a good rapport with the pupils, colleagues and the school administration.

The above mentioned will contribute to the success of the methods the teacher may use in teaching.

ACTIVITY I

1. Define methodology and teaching.
2. What are the principles that promote effective teaching?

WHAT IS TEACHING?

The term teaching can be defined in several ways. First, teaching can be defined as the work we do, and by means of which we earn our living. i.e., an occupation. Secondly, it can be defined as a cluster of activities that we engage in during some specific time period, and thirdly teaching may be defined as an act of a particular kind i.e. movement of the body, or parts of the body, talking, pausing, explaining, reading etc.

Thus, one might be a teacher but may not engage in teaching at the moment. Or one may actually be engaged in the teaching enterprise of trying to get students to learn during a lesson but may not be performing a teaching act at the moment e.g. marking a register, opening the windows for ventilation, checking noise and maintaining discipline and so on. Yet if you ask the teacher what he did in school during the first period, he would reply (and legitimately too) that he has been teaching. This is the sense of teaching as an enterprise - a cluster of activities that have the teaching act itself as its centre, that facilitate or promote the teaching act, and in a larger sense, that contribute toward the total education of children committed to the teacher's charge. A good teacher, it is true, is marked out by the excellent way in which he performs these activities, but the most central act which lends the name of teaching to all other activities is the teaching act itself.

Basically however, we shall be primarily concerned in this unit with the kinds of things teachers actually do when they are teaching. Obviously, teachers do many different kinds of things when teaching. They question, explain, demonstrate, motivate, listen, make judgements, evaluate, and so on. And it is just these particular kinds of act that can be called teaching.

FUNCTIONS OF TEACHING:

i. Informing and Explaining: A good teacher is expected to be well-informed in his areas of specialization. He is expected to be able to communicate his knowledge to his students.

ii. Stimulating, Directing, Guiding and Administering: Teaching involves stimulating the pupils to learn. The child is equally to be directed and guided in his study. The teacher has the task of administering many children in the classroom. He is to see that none of the pupils is disturbed from learning.

iii. Identifying what to learn: The proprietor of the school gives the teachers the syllabus. It is the responsibility of the teacher to interpret and present it to the child.

iv. Identifying Learning Problems: During teaching, the teacher asks series of questions. These help to expose the pupils' learning problems. It is the responsibility of the teacher to solve these problems through remedial work.

v. Evaluating, Reporting and Recording: Teaching includes evaluating the pupils' performances. These are reported and recorded to show the progress record of the pupils. Educationists rates evaluating as important as instructing.

vi. Classroom Arrangement: This is a part of teaching activities. The classroom is the stage for learning. The methods to be used and the likely atmosphere of the class is determined by the organisation of the classroom.

vii. Socialization: Some functions of teaching are deliberate while some are latent. Among the latent functions, is socialization. As the pupils learn together, they become intimate. Thus, they become friends.

viii. School-Community Relationship: The school is known to be a microcosm of the society. Through teaching, the teacher may foster relationships with the community.

PRINCIPLES UNDERLYING TEACHING

Teaching has some underlying principles. These are:-

i. Clear Objectives: Teaching is goal-oriented. To achieve the goal, there should be set objectives. In preparing to teach, the objectives to be achieved must be clearly stated. This serves as a guideline in teaching.

ii. Pupils' readiness: Teacher should ensure that the pupils are intellectually ready for what is to be taught.

iii. Previous experience: Every child had some experiences before going to school. The teacher should build on these.

iv. Individual differences: It is known that learners are different from one another in many ways. These differences must be realized by the teacher. He should recognize these differences and use a variety of methods and materials to teach.

v. Teaching should be systematic: It should proceed from known to unknown, simple to difficult, concrete to abstract, and general to specific.

ACTIVITY II

1. What principles underlie teaching?

LEARNING:

The main function of the teacher is to bring about learning. This means that the essence of teaching is to bring about learning.

Learning involves the acquisition of new knowledge, ideas, skills, values and experiences which enable the individual to modify or alter his actions. It also involves the utilization of the newly acquired knowledge or experience as well. Learning brings about permanent changes in the learner.

THE PROCESS OF LEARNING:

i. The first step in the process of learning is the INPUT. This is in form of a stimulus. For example, let us assume that you want to learn about an aeroplane. The input or stimulus is an aeroplane or a picture of an aeroplane you saw or a model of it.

ii. The next stage is that of perception which leads to choice and actions. Perception has to do with the process of becoming aware of change through the mind or the eyes. It is at this stage we start thinking of the shape of the plane, the interior, how it flies and lands, the risks and the importance of it.. The perception leads to the stage of mental activities called covert activities.

iii. After that stage, come covert activities: This is the stage of visible activities that bring about the learning. It is now you examine, draw, write, talk, and discuss about the plane. This is the period when learning takes place.

iv. To have a permanent change of behaviour, some authors emphasize that there should be repetitive action (repetition) as in (iii) above e.g. You re-examine the plane and discuss it again and again.

v. After repetition, comes association: This is the time we can interpret things in the light of our previous experiences. For example, you now associate the time when a plane flew over your school with the new information you heard about it and so on.

By now you reach the stage of output which is the learning stage. Learning has taken place.

EFFECTIVE WAYS OF LEARNING:

Learning is a continuous process. To stimulate the pupils to learn, the teacher should:

i. create avenues for learning in and outside the classroom.

ii. inform the pupils of the educational facilities around them i.e. libraries, bookshops, resource centres etc.

iii. give the students assignments regularly. He should mark and discuss the assignment with the pupils.

iv. encourage the pupils to develop their area of interest.

v. organise discussions, debates and competitions to challenge the pupils' thoughts.

vi. give the pupils feedback on their work.

vii. use problem solving approach in getting the pupils to learn.

viii. use group and individual methods to stimulate the spirit of independent learning among the pupils.

ACTIVITY III:

1. Explain the process of learning.
2. What are the effective ways of learning?

THE LECTURE: DEFINITION AND USES

One of the prominent areas of education, which had attracted the attention of educationists through the ages, is the process of making the teaching-learning situation easy for both the teachers and the learners. This has led to the evolvement of various types of methods of teaching. Some of these methods had been in use as early as the period of the Greek philosophers i.e. Socrates (470 - 399 B.C) and Plato (427-347 B.C). Some methods however, surfaced in recent times. Educationists are still conducting researches to improve methodology. One of the earliest methods in use is the lecture method. Some educationists termed it as one of the Traditional Methods. The ancient time teachers- the Greek Philosophers, the Jewish Rabbis were surrounded by their students who listen to their `words of knowledge or wisdom'. The teachers talked or `pumped out their knowledge' while the students listened attentively. The lecture method, though regarded by some educationists as traditional or out-dated, is one of the methods which is widely used particularly in the post secondary institutions today. It is equally used in the upper classes of secondary schools.

The Lecture Method is a process whereby the teacher verbally delivers a pre-planned body of knowledge to his students. The teacher talks while the students listen and jot down points. In some cases the teacher may not take questions from the students. Some times, he entertains questions either to emphasize some points or to make some points clearer. This method, which is teacher - centered, is often used in upper classes of secondary schools and in post secondary institutions. These days, teachers can lecture a crowd of students or unseen students through the use of radio or television. It may be used in the lower classes in some situations. For example:

i. It may be used when introducing a new topic to the pupils. This introduction is expected to give the pupils a clear idea of what the topic is all about.

ii. It could be used to stimulate the interest of the pupils in the new topic.

iii. It is a method that can be used to clarify a point or some points which many of the pupils misunderstood when another method i.e. individual or group method is used.

iv. It can be used when there are no appropriate or adequate textbooks for the pupils to use. The method is then used as a supplement to whatever the pupils are able to gather, if any.

USING THE LECTURE METHOD

Like in any method, using lecture method requires adequate and thorough preparation. In your preparation you have to consider the objectives to be achieved in the lesson. A good command of language is very necessary for successful use of this method. It is necessary for the teacher to prepare for this. It is necessary for the teacher to prepare appropriate and related examples to use during the lesson to 'drive home' his points. Illustrative materials like pictures, concrete objects etc. that can make the points clearer to the students should equally be prepared beforehand.

The introduction in a Lecture Method should be as interesting as possible. This may be in the form of a short story, a statement, a question or any activity, which may stimulate the students to like to listen to the lesson.

In the presentation of the lesson, the teacher should display a good command of the language. A fluent teacher is likely to arrest the attention of the students more than a stammerer or a 'poor speaker'. It is also necessary that the points to be taught should be presented in a sequential and interrelated manner for easy understanding. Sequential presentation also aids recall. It is not out of place to repeat some points when necessary for emphasis and clarity. However, the teacher should not over do this. A repetition of every point made may bore the students or make some to form the habit of not listening to the teacher at times as they know that the points they may miss will be repeated later. Periodic humour and the use of appropriate examples do enliven the interest of the students and avoid the strain of following the lecture. The teacher should prepare for these during the preparation stage and employ them at the appropriate stages of presentation. One pitfall of some teacher in the use of humour is that they digress from the actual point of lecture. Teachers should avoid this as digressions may ruin a lesson.

In conclusion the teacher could summarize the points taught and emphasize as necessary. It is useful to give references for further reading or other forms of assignment for reinforcement.

Chalkboard work - Some teachers particularly in higher institutions only talk when they lecture. They do not write the points they make on the chalkboard. The ideal thing is to write on the chalkboard each point made in sequential order.

The students would copy at each point. Equally the defect of lecture method, which appeals to auditory sense alone,` will be minimized. Jotting points on the chalkboard do appeal to the visual sense.

ADVANTAGES

Like other methods, the lecture method has its good points. Some of these are as follow:

i. It can be used to cover a wide area of study within a short period.

ii. The teacher can teach a large population of students at once.

iii. Unlike individual or group method, fewer instructional materials are required in the lecture method.

iv. The students are given the same material contents at the same time. In other words, there is uniformity in the facts the students are given.

v. The students' efforts in searching for facts in books are saved as they are told the facts by the teacher.

vi. The teacher has full control on what the students should learn or know.

DISADVANTAGES

i. The students are passive and spoon-fed.

ii. The method is teacher-centered and not learner-centered.

iii. The method does not give the students the opportunity for oral communication interactions with the teacher or colleagues.

iv. The method does not encourage the growth of the students enquiring or creative mind.

v. The method does not cater for the individual differences of the students. All the students in the class are taught the same thing at the same rate without minding the fact that the students assimilate at different rates.

vi. It is the auditory (hearing) sense that is mainly called to work in Lecture Method. Students with ear defect are often at a disadvantage.

vii. In lecture method, the students' understanding is judged by mere assumptions by the teacher. As the teacher speaks, he is of the opinion that the students understand and follow. This is an assumption, which is often wrong.

viii. As the students are not involved in active work in the lesson, they are prone to forget what is taught easily.

ACTIVITY IV

1. What is meant by the lecture method?
2. In what situations can it be used in most classes?
3. In preparing to use lecture method in a lesson, what are the points you as a teacher should take note of?
4. What are the advantages of Lecture Method?
5. What are the disadvantages of Lecture Method?

THE DISCUSSION METHOD:

A verbal exchange of view, opinions or ideas between two or more people is referred to as a discussion. This activity is what takes place in Discussion Method. The teacher gives the students a problem to solve. They carefully consider the topic, argue among themselves in democratic manner, suggest solutions and draw conclusions. Sometimes, a short discussion among the students may take place as a part of lesson in which another method is dominantly used. This may be an exercise or a form of reinforcement. In this unit, the discussion method is treated as a pre-planned and organised process of teaching and learning. In preparing to use the discussion method, the teacher has to first of all consider the topic. He should ensure that the topic has no clear-cut answer but can be viewed from various angles. The topic should also be at the students' level and also the type they are familiar with. That means that it should be within their ability to discuss. The students should be informed some days before hand. This will enable them to think about the topic, collect points and make up their minds as regards what to say.

USING DISCUSSION METHOD:

The discussion group may be in three forms i.e. the whole class, small groups or the panel. The whole class discussion is usually used when the students are inexperienced to handle an organised discussion on their own. In this case, the teacher should be the chairman. He directs and guides the discussion. The small group discussion is the ideal for meaningful learning. A small group of about five or six students is better than a large group. Children in small groups will have more opportunities to contribute to the discussion.

The teacher should be careful in selecting the students in groups. In each group, the students must be of various abilities and disposition. The brilliant and the weak ones, the vocal and the quiet students should be together. The leadership should be interested in the topic. The shy or submissive students should be mixed in each group. Each group should choose a leader and a secretary. The leader or the recorder reports to the class the conclusions of the group during the reports session. As for the panel, a group of about five students are selected to address the class on different aspects of a topic. The class jots down points made as the members of the panel speak one after another. At the end of the presentation, the topic is thrown open to the class for comments. The teacher or whoever is chosen as the 'moderator' summarizes the points made and he draws the conclusions. Whatever grouping is used, the democratic principles should be emphasized.

i. Thus, each student should talk only when he is asked to.

ii. They should learn to listen to and respect the views of others.

iii. There should be no personal or verbal attack during or after a discussion.

ADVANTAGES

i. This method encourages students to listen, think, analyse and critically evaluate points made.

ii. Students learn from each other.

iii. It gives the students the opportunity to practice their oral communication skills.

iv. It gives the students training in respecting others' views.

v. It gives the students training in looking for facts on their own.

DISADVANTAGES

i. It cannot be used in all topics in all subjects, particularly in Mathematics and the Sciences. It is useful mostly in the Arts and the Social Sciences.

ii. While the brighter and vocal students may find it as an avenue to show off, so also do the weak or shy students find it uneasy to argue convincingly in the group.

iii. Unlike lecture method, it is not ideal for a large class.

ACTIVITY V

1. Define the discussion method.
2. Discuss the advantages and disadvantages of the discussion method.

INDIVIDUALIZED INSTRUCTION

In most of our schools today, teachers still use the traditional method of instruction i.e. talking to a group of pupils in the classroom. By mere method of talking, many pupils are taught the same thing in the same way and at the same time. The teacher appears to forget that students differ from each other in their interest, the ways they learn and their rate of learning. Educationists appreciate the importance of individual differences in learning. Unfortunately, this fact is often neglected during teaching. In recent years, emphasis has been laid on the child as an individual. This means that in teaching and learning, each child is considered in line with his\her individual differences. This has led to what is now known as Individualized Instruction.

MEANING OF INDIVIDUALIZED INSTRUCTION

Individualized Instruction is defined as a process in which the student learns all on his own a field of study or a topic broken into bits, according to his interest and ability, using specially prepared programmed books, cards, and electrical or electronic teaching machines. The teacher serves as a 'consultant'. The student studies on his own and consults the teacher only when he needs him. This way, he is able to determine and learn the amount of work he is able to study at a given period and at his own pace.

METHODS OF INDIVIDUALIZED INSTRUCTION

Series of researches had been conducted to find the best method of Teaching using the Individualized Instruction, which started in 1950s. Among the methods developed are:

1. Programmed Instruction (PI)
2. Computer Assisted Instruction (CAI)
3. Learner Controlled Instruction (LCI)
4. Teaching Machine (TM)
5. Personalized - System of Instruction (PSI)

CHARACTERISTICS OF INDIVIDUALIZED INSTRUCTION

Individualized instruction is based on the principles of operant learning theory developed by Professor B. F. Skinner. As a result, the characteristics are in line with the principles emphasised by Skinner.

i. The learner determines his instructional objectives. That means, he determines what he wants to study.

ii. He specifies what he would want to know at the end of the study. This is specified in behavioural changes, which can be observed and measured at the end of the study.

iii. The instruction is broken into bits according to the needs, capabilities and interests of the individual learner.

iv. The learner performs the learning activities either by reading, writing or manipulating the instructional materials in use. He is active not passive.

v. Questions on areas covered are asked at interval to show the learner whether he understands or not. The teacher attempts to reward and reinforce the learner's efforts. Usually, the correct answers are given in a corner of the book or in the machine.

vi. The immediate feedback received motivates the learner to learn more.

vii. The learner works at his own pace. He is not `held up' or `pulled forward' by the others.

ACTIVITY VI:

1. Define Individualized Instruction.
2. In what ways are students different from each other in learning?
3. Mention some of the methods used in Individualized Instruction.
4. Enumerate some of the characteristics of Individualized Instruction.

PROBLEMS IN IMPLEMENTING INDIVIDUALIZED INSTRUCTION IN NIGERIA

i. Individualized Instruction is relatively a new approach to teaching. It was developed in 1950s in U.S.A. It takes sometime before such a new method gains ground over the long existing system.

ii. Many teachers in Nigeria have no practical training, if any at all, in Individualized Instruction.

iii. There are no Individualized Instructional books, electrical and electronic machines in the country.

iv. It is very expensive to import such books and machines for Nigerian Schools.

v. Education is examination oriented in Nigeria. The concern of the teachers and the students is to cover the syllabus. Thus individualized instruction may not be easily accommodated.

SUGGESTIONS FOR IMPLEMENTING INDIVIDUALIZED INSTRUCTION

i. The Teacher should be more conscious of the individuality of each of the students in the class.

ii. The Teacher should respect each pupil's opinion as much as possible. Conformity and uniformity of opinion should not be enforced.

iii. Students should be encouraged to ask and answer questions in the class.

iv. The spirit of inquiry and discovery should be encouraged among the pupils.

v. Free and constructive communication should be encouraged between the teacher and the students and among the students.

vi. Students should be encouraged to go into the Library to find out things.

vii. Students should be given assignments regularly. They should be encouraged to do it on their own.

ACTIVITY VII

1. Why is individualized instruction not widely used in Nigeria now?
2. What suggestions can you give to make the learners develop their individual potentials?

SUMMARY

- Man has through ages educated his young ones through many media. These media are called methods. Methodology is defined as the study of the methods of teaching.
- Methodology in this unit, is examined as the study and practice of various methods of teaching. Various aspects of education in relationship to methodology are studied in methodology class.
- The principles underlying methods of teaching are: understanding the theory and practice of methodology in order to be able to teach according to the nature of the topic; consideration for the individuality of the pupils and flexibility in methods, the utilization of child and adolescent studies and the development of good relationship with others in the school as well as the pupils.
- Teaching is more than imparting of knowledge; it includes attempts to help someone acquire or change some skills, attitudes, knowledge, idea or appreciation. Its functions include informing, explaining, stimulating, directing, guiding and administering the pupils; identifying what to learn and learning problems; evaluating, reporting and recording the performances of the pupils. Other functions include classroom management, class unity, giving security, development of school community relationship, participating in school and professional activities. The principles underlying teaching include formation of clear objectives, pupils readiness, building on pupils previous experiences, meaningful learning and respect for individual differences.

- Learning in ancient times emphasized memorization or rote learning. Now it is seen as the acquisition of new knowledge, ideas, skills, values and experiences that enable the individual to modify or alter his actions. Learning and teaching are inseparable activities.

- The process of learning involves input, perception, covert activities, overt activities, repetition, association and output.

- Lecture Method is a process of teaching whereby the teacher tells the students his pre-planned facts. The students listen and take notes. It is one of the oldest methods in use. The success of this method depends on the ability of the teacher to speak fluently in good tone and style. Among its advantages is that many students can be taught at the same time. It is economical in time, teaching materials and students' labour. However, its limitation lies in the fact that the students are passive in class.

- Discussion Method is an organized teaching/learning process. By this method, the class may be arranged in groups or panels. The class may remain together to exchange views, opinions or ideas on a pre-determined topic. This is a method in which the students are actively involved if the groups are in small numbers and heterogeneous. Its limitations include the fact that it cannot be used in some aspects of Mathematics and the Science subjects. Equally, the talkative or brilliant students may seize the opportunity of the open discussion to show off. On the other hand, the shy or weak ones may feel ashamed.

- Most teachers in our schools do not pay attention to the individuality of each pupil in the class. Mere talking methods are used in teaching instead of individualized instruction.

- As far back as 1950s, the developed countries had been changing to Individualized Instruction. This method is defined as a process in which the students, through the use of specially programmed books or electrical or electronic machines, learn what they want at their own pace. The teacher serves as a consultant. Among the techniques used in Individualized Instruction include Programmed Instruction (PI), Computer Assisted Instruction (CAI), Learner Controlled Instruction (LCI), Teaching Machine (TM), and Personalized System of Instruction (PSI).

- The learner determines his instructional objectives and goals. Another characteristics of the method is that the learner covers the fields of study in bits. At each stage, questions are answered. The learner has to answer and master the questions before he goes further. The immediate correct answer given helps to reward and reinforce the learner as well as stimulate him to work further. Above all, the learner works at his own pace.

- This method of teaching is not in use in our schools due to non-availability of trained teachers. Equally, there are no suitable books and machines. Above all , the examination-oriented educational system in operation in the country may not accommodate its implementation. However, the encouragement of the students to

develop their potentials and good teacher and students relationships will go a long way to develop the individuality of each learner.

ASSIGNMENT

1. In what ways can methodology be viewed as a science as well as an art?
2. Discuss the concepts: Teaching and Learning".
3. Carefully examine the various factors you will consider at each stage of a lesson (i.e. Introduction, Presentation and Conclusion), when using the Lecture Method.
4. Describe how three discussion groupings can be effectively organised and used in classroom situation.
5. Through what media is individualized instruction put into use?
6. What are the characteristics of Individualized Instruction?
7. Why is individualized instruction not in use in our Schools?

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UNIT 2: METHODS OF TEACHING I: PROBLEM-SOLVING, DISCOVERY, INQUIRY AND SIMULATION METHODS

INTRODUCTION

The title 'problem-solving' is a pointer to what the method is all about; life is full of problems. Man is always faced with one form of problem or the other. Equally, it has become part of man to find solutions to his problems. In problem solving method, students are trained, using learning situations, to solve problems scientifically.

Many authors see the discovery, inquiry and problem-solving methods as inter-related. Much as they overlap, for the sake of emphasis, the problem-solving method is treated separately in this unit. The history of this method can be traced to John Dewey. Other methods equally discussed in the unit are the Discovery, Inquiry and Play/Simulation.

OBJECTIVES

By the end of this unit, you should be able to:

1. explain what the problem-solving method means;
2. name and describe two procedures used in the problem- solving method; and
3. explain both Discovery and Inquiry methods;
4. explain the techniques of teaching concepts;
5. define play simulation, and simulation games;
6. explain the procedure in using simulation games;

HOW TO STUDY THIS UNIT

1. Read through this unit once. You should note the important ideas as you read. Also as you read, look up unfamiliar words in your dictionary.
2. Then go back and study the unit step by step as arranged. Attempt all the activities given.
3. Try to observe all the rules stated. Do not forget to attempt the unit assignment. If you carry out all the above-stated steps, then you will benefit from this unit.

DEFINITION AND DESCRIPTION OF THE PROBLEM-SOLVING METHOD

Omstatted (1944) defined problem-solving method as an application of the unit idea. It embraces a continuous, meaningful, well integrated activity beginning with a problematical situation. It then ends when the problem has been solved and the solution checked. The series

of actions involved in the process constitute a unit of experience, he added. In other words, problem-solving method is a teaching-learning process in which the students work on solving a problem. They do this by using the result of some analysed data. The data are collected from a proved solution rather than an assumed solution.

In problem - solving method, the students are given a problem. They are to find proven solutions to the problem.

i. The first thing to do is for the students to think of the nature of the problem.

ii. The next activity is to formulate (put forward) a tentative, guessed or suggested solution termed hypothesis.

iii. At the third stage the students collect relevant data (facts or information).

iv. The data are then analysed.

v. The next activity is to test the hypothesis against the result of the data analysis.

vi. The outcome determines whether the hypothesis (tentative, assumed or suggested solution) is acceptable, rejected or to be modified.

vii. The students then draw conclusions.

viii. The conclusions are then applied in new situations and new data.

ix. Lastly meaningful generalizations can then be developed.

PLANNING STAGE

In planning to use problem-solving method for teaching, the teacher has to undertake the following measures:

i. The teacher plans the topic and suggest some ideas that will be of interest to the students.

ii. He determines how to organise the class in groups

iii. Considering available resources, he determines the time for the task, and

iv. Finally, he identifies and directs the students to initial the students' reference materials.

PROBLEM-SOLVING METHOD TYPES

There are three types of problem-solving approaches.

These are: (i) the guided approach, (ii) the modified approach, and (iii) the free approach.

i. The guided approach is used when the students are inexperienced in the use of the method. The teacher takes control and directs the students in all areas of the lesson. He initiates the topic, the hypothesis, the collection and analysis of the data. He guides the students to arrive at a generalisation.

ii. The modified approach is used when the students are 'catching up' the method. They can handle some parts of the procedure. However, the teacher still serves as a resource person.

iii. The free approach is used when the students can handle the method on their own. They can formulate the topic and work on it to the making of the general statements (generalizations).

PROCEDURE

There are two procedures students can use in problem-solving Method. These are:

i. Inductive procedure

ii. Deductive procedure

The purpose of inductive procedure is to enable the students to establish generalizations (general principles) from observed cases. The procedure considers:

i. the study of the topic.

ii. finding out facts about the topic

iii. formulating hypothesis.

iv. collecting and analyzing data.

v. testing the hypothesis against the result of the data analysis.

vi. drawing of conclusion.

vii. application of the conclusion to new situations and new data.

viii. Meaningful generalizations are then drawn.

The above (i) - (viii) are the same as in 4.1 (i) - (ix). But (v) under Procedure represents both (v) and (vi) in 4.1.

A simple example of inductive procedure could be as follows:

i. Topic - Height of Men

ii. Hypothesis- Men are tall

iii. Data - collection of the heights of as many men as you may wish to use.

iv. Data analysis - comparing the heights of these men with what you consider to be the height of a tall person.

v. Conclusion - Many men are tall or some men are tall.

vi. Re-test - collection and comparison of the heights of more men.

vii. Generalization - some men are tall

In deductive procedure, the students are given established rules. These rules are to be used to solve a problem or to prove the correctness of the rules. The procedure is as follows:

i. the generalization is given.

ii. the generalization is applied in new situations and against new data.

iii. a conclusion is drawn.

From the example above, the procedure could be as follows:

i. Generalization - Some men are tall.

ii. Test - collection and comparison of the height of some men.

iii. Conclusion - Some men are tall.

ACTIVITY I

1. Define Problem-solving method
2. Mention and describe the three types of problem-solving approaches.
3. Define the Inductive and the Deductive procedures.

TEACHER'S ROLES IN A PROBLEM-SOLVING APPROACH

During a problem-solving lesson, the teacher is expected to be actively involved.

i. He is to encourage the students to explore and test new ideas.

ii. He is to encourage the students to prove and share their findings with the other students.

iii. He should be raising new questions to guide the students to look for more ideas.

iv. He should point out to the class the creative and original work of any student or students.

v. He is expected to summarize all findings and announce to the class.

vi. He should throughout the lesson be in full control of the class.

ADVANTAGES

i. Students are actively involved in the lesson.

ii. The activities may generate enthusiasm and interest in the students.

iii. Students are trained to organise their own learning.

iv. As students find out things for themselves they remember them better.

v. The method encourages critical thinking and scientific investigation skills.

vi. It changes the attitudes of the students to knowledge. They look at knowledge as tentative rather than permanent. They get new knowledge.

vii. Gifted and brilliant students benefit a lot from this method.

DISADVANTAGES

i. It is time consuming.

ii. It may be demanding on the teacher as students may discover series of facts and raise questions which may embarrass ill prepared teachers.

iii. Slow students may be at a disadvantage.

iv. It is not possible to use the method in all situations.

ACTIVITY I

1. Define Problem-Solving Method.
2. What steps will you take as a teacher when planning a problem-solving lesson?
3. Mention and describe the three types of Problem-solving approaches.
4. Define the inductive and the deductive procedures.
5. Explain the roles of a teacher in a problem-solving lesson.
6. In what ways is problem-solving method time consuming?

DISCOVERY AND INQUIRY METHODS

Have you ever forgotten the name of a familiar person before? What efforts did you make to remember it? Think of the time you nearly remembered but you could not recall it. Think of when you remembered it. How did you feel? Were you happy?

Now think of the time you read a topic in readiness for an examination but you did not understand it. How did you feel? How did you feel when you read the topic again and you understood it? Were you happy? What actually happened was that, you discovered the concept explained in the topic and it became clear to you. This is the concept of (idea underlying) Discovery Method.

The inquiry method is more or less the same as the problem method. Both of them use the same scientific approach to investigate facts. They are equally based on discovery method.

THE DISCOVERY METHOD

The word `discovery' means `finding out' Discovery method is defined as a process through which students find out facts or knowledge through the understanding of concepts.

By its definition discovery implies `induction'. By it, students proceed from specific example (precepts) to concepts, and from concepts to a generalization or principle. Three basic words are prominent in the discovery method. These are precepts, concepts and generalization. However, concepts formation is the dominant activity in the method. Concepts formation is the difference between this method and the problem and inquiry methods. However, the discovery, problem and inquiry methods are inter-related.

`Inquiry' means `investigation'. The method is based on investigation. Accordingly, the students use scientific investigation to arrive at a probable generalization as in problem method.

USING THE DISCOVERY METHOD

A good understanding of the terms `precept' and `concept' will throw light on the procedure of using discovery method in teaching. The word 'precept' means specific example. Man comes across series of experiences. These experiences or specific examples form the basis for the formation of concepts.

A concept defines a class of objects, events or processes in terms of its common elements. To have a concept of any object is to categorize it. Categorizing is the means by which the objects around us are identified. It is a means of reducing the complexity of our immediate surrounding into manageable and understandable groups. No doubt, our surrounding is full of many objects that we cannot always identify one by one. But through the use of concepts, we can group these objects according to their characteristics.

Concepts may be either concrete or abstract. They must have critical or defining attributes. Concrete concepts can be seen. Their defining or critical attributes refer to their shape or size or other visible characteristics, for example. A house is a concrete object. It may be a hut, a bungalow or a storey building. They have common attributes. Abstract concepts are sometimes called defined concepts. They cannot be seen and must be learned by definition. Such concepts include 'truth', "honesty", 'justice', etc.

TEACHING OF CONCEPTS

There are some steps expected in the teaching of concepts. These are:

i. The teacher should state the objective of the lesson clearly. He should present the student with many examples and ask them to select the appropriate ones. For example, if the concept is 'animal,' the teacher should give examples like goat, shop, lion, tiger, tree, cows etc. He then asks the student to pick the animals in the list. This can take place after the students have learnt the attributes of animals.

ii. The teacher should be aware of the required knowledge that will facilitate the understanding of the students. The student must be able to distinguish one object from another. This ability to discriminate among objects, ideas, etc. is a pre-requisite knowledge.

iii.. The teacher should present definitions and examples. The teacher should first select the definition, including the attributes, before selecting appropriate examples and non-examples. Enough examples should be given so that they can fully understand the attribute of a concept. Equally enough, non-examples should be presented so that the students can recognize and exclude them.

iv. The teacher should provide for the response from students and give feedback. He should test the students' knowledge of concepts by having students point out new and

unfamiliar examples of each concept, and when necessary the teacher should demonstrate the use of the concepts.

TEACHING OF PRINCIPLES

The teaching of principles follows the same steps as the teaching of concepts. It takes the same steps.

A principle is a statement of relationship between concepts. The steps are:

i. Students should be aware of the performances expected of them after learning the principle (the objectives)

ii. Identify the principles that the students must recall to learn the new principle.

iii. The teacher must aid the students in revising the concepts involved in the principles.

iv. The teacher directs the students in deriving at the new principles.

v. The student should be given lots of practice and examples of the principles.

vi. The teacher should provide the students 'with new examples to assess the students' understanding of the principle.

In discovery method the students are expected to learn by providing new examples.

ADVANTAGES OF THE DISCOVERY METHOD

i.. It is self-rewarding. Students discover the facts on their own.

ii. The students are actively involved in the lesson.

iii. The students are rewarded by being motivated.

iv. The students remember longer because they discover the facts (concepts and principles) on their own.

v. Discovery learning helps in understanding the structure of knowledge. When one understands the structure of a subject, one understands how other subjects are related to it.

DISADVANTAGES

i.. it is time consuming

ii. it is expensive in the sense that many resource materials (teaching aids) are required.

iii. It cannot be used in all situations as it is not possible for the students to rediscover all knowledge. The teacher has to teach them some aspects of it at one time or the other.

ACTIVITY II

1. Define Discovery Method
2. Explain what is meant by the term "concept".
3. What are the advantages of the discovery method?
4. What are the disadvantages of the discovery method?

THE INQUIRY APPROACH

Teaching concepts by discovery involves teaching a method of inquiry with broad application to problem solving and knowledge gathering. Some believe that problem solving comes first and that students can begin to understand specific elements of the subject after learning how to solve problems and how to work with concepts and principles. The discovery method and the problem-solving method are interrelated.

Inquiry/Problem-Solving Methods incorporate discovery approach as one of its elements. Some believe that the Inquiry/Problem-Solving method is a natural extension of the discovery approach. The Inquiry/Problem solving are better for the higher classes of secondary schools (S.S.S Classes). On the other hand, the discovery method is suited to all levels.

In using the Inquiry approach strategy, the learner

i. identifies and classifies the purpose of the inquiry;

ii. formulates a hypothesis;

iii. collects and analyzes data;

iv. tests the hypothesis against the result of data analysis;

v. draws conclusions;

vi. applies the conclusions to a new situation and new data; and

vii. develops a meaningful generalization.

PLAY AND SIMULATION GAMES

Simulation, games, play and roles playing are old methods employed by man to learn to prepare themselves for further responsibilities in the family, and the society and for recreation. In other words, all these had been in use by the young ones to adjust themselves to their environment. Often, we see little children imitating the actions of the elders. They play the roles of teachers, hunters, fathers, mothers, drivers etc. During these roles playing, they simulate (imitate) the ways the elders behave and perform their responsibilities in actual life situation. We have all undergone this experience at one time or the other, no doubt. However, simulation games are relatively new to man's society. They are miniature realities of situations prepared for man to react to, get him ready for real life situations. These simulation games have certain characteristics which identify them. These we shall examine in the unit.

DEFINITION OF PLAY AND SIMULATION GAMES

Play is an activity which employs the "make believe" medium for learning purposes. It is an age-long method through which the child learns.

Simulation means imitation. In teaching situation, simulation refers to calculated copying of real life activities in a simplified manner so that it becomes more accessible and understood. Instead of mere verbal descriptions or explanations, imaginary or miniature situations are provided for learning activities.

Simulation games is a term used for various simulation exercises which may be a high level activity carried out by the government or anyone.

Simulation games have the following characteristics.

(a) competitive.

(b) they make use of mental and social skills.

(c) marked by chance.

(d) marked by clearly defined issues and view points.

(e) clearly rewarding.

(f) characterized by a regular, orderly progress towards a specified and realistic goal.

An example of such a simulation game is monopoly (You can get this to buy in the market, Supermarkets or Sports Shops). It is a board game involving four players who compete to buy and control property. The player who is able to buy the most as well as the expensive properties wins. This board game satisfies the characteristics listed above.

PROCEDURE IN USING SIMULATION GAMES IN TEACHING

i. In planning to use simulation games, the first thing the teacher should do is to learn to play the game.

ii. The teacher must decide on the groupings of the pupils for the game. Equally, he has to decide on the sitting arrangement.

iii. The class should be taught how to handle the games materials so that they are not ruined. Equally, he should announce the general rules and regulations to the class in order to prevent quarrels emanating from competitions.

iv. In introducing the game, the teacher should make a brief explanation about the rules of the game.

v. He should make sure the pupils understand the rules and the language of the game before playing.

vi. He should first of all play the game with some students he had already taught for the introduction in front of the class.

vii. If there are enough copies of the game, each group should have one to play.

viii. The teacher should go round the class and guide the pupils as necessary.

ix. The Teacher should call the attention of the class to common problems noticed. He should explain to them as necessary.

x. In conclusion, the class meets to discuss their opinions, learning and questions at the end of the period.

PROCEDURES FOR USING PLAY METHOD

A. For drama-type plays:

i. The play must be simple and straight forward particularly in primary classes.

ii. It should not be too long.

iii. Choose the actors. Make sure you have two or three pupils for each character.

iv. The speeches may be memorized or read from pieces of paper.

v. The location of the stage in the classroom must be a point where all the pupils can see the play and hear the speakers.

vi. The important points which the teacher would want the students to understand must be given prominence.

vii. The discussion session must be used to end the play.

During this period, the points to be noted should be re-emphasized.

B. In other forms of play activities, the procedure includes:

i. The objectives of the play activities must be made clear.

ii. The pupils should be given the necessary materials.

iii. The pupils should be guided.

iv. The teacher should draw the attention of the pupils to the points of importance.

v. A short discussion session should end the play activities.

ADVANTAGES OF SIMULATION GAMES

The games have some sterling advantages.

i. The realities of life are presented in concrete and simple forms.

ii. Simulating games are highly self motivating.

iii. The mental ability of the pupils are fully put into use.

iv. Simulation games give the pupils the increase in personal sense of the environmental control. The success of a skilled player gives him the confidence of his capability to solve similar problems in every day life situation.

v. They are effective techniques of teaching.

ADVANTAGES OF PLAY

i. It makes young children learn while playing.

ii. It is motivating.

iii. Learning becomes concrete and true to life.

iv. The complexities of concepts are made simple.

v. Plays aid retention and recall as a result of the imagery that could be built from the activities of the play.

DISADVANTAGES OF SIMULATION GAMES

i. Simulation games are expensive and in many cases, not available. For example some useful Social Studies simulation games are not available in our country.

ii. Some of those games which are available are foreign in background. They are not based on Nigeria cultural background.

iii. Some games are time-consuming.

iv. Because of the competitive nature of the games, there are tendencies for disorderly behaviour in the class.

v. Some games are too difficult to understand.

DISADVANTAGES OF PLAY

i. Both drama-type plays and other forms of plays are time consuming.

ii. Plays also requires a lot of materials and are expensive.

iii. Some pupils may not find it easy to transfer the learning in plays to other situations.

ACTIVITY III

1. Enumerate the procedure for using the inquiry method.
2. What are the characteristics of simulation games?
3. What are the procedures in play activities?
4. What are the advantages of simulation games?
5. What are the advantages of play?
6. What are the disadvantages of Simulation Games?

SUMMARY

- Problem-solving method is a process in which students solve a problem using the scientific approach to collect and analyze data. The data collected are used to arrive at

a proven solution rather than a guessed solution. John Dewey was one of the philosophers who emphasized the use of this method in recent times.

- The procedure of using the method involves:
  i. formulating a topic
  ii. formulating a hypothesis.
  iii. collecting and analyzing data.
  iv. testing the hypothesis
  v. formulating a conclusion
  vi. testing the conclusion against new data and analysis
  vii. formulating generalizations.
- This is an inductive approach. The deductive procedure involves testing from the generalization to a conclusion. The approach is the opposite of the inductive procedure. At the initial stage of using the method, the students are to be guided until when they are capable of working on their own. Then the Free Approach could be employed.
- Like any method, the problem-solving has its advantages and disadvantages. It is to its credit that the students are actively involved in the lesson and they find out facts on their own. This may make them remember for a long time. It also makes recall easier. But, it is time-consuming.
- Discovery method is a process through which students find out fact or knowledge through the understanding of concepts. In this method, students proceed from specific examples (precepts) to concepts and from concepts to generalisation. The emphasis on the formation of concepts is the difference between this methods and the problem-solving/Inquiry method.
- The word 'inquiry' means investigation. The Inquiry method is the process in which the students use scientific investigation to arrive at a generalization.
- Concepts have to do with the classification of objects or ideas. There are concrete and abstract concepts. In teaching concepts, the teacher should identify the objective of the lesson, plan the required procedure that will make the students understand the concept, present many positive and negative examples for the student to classify. The steps to take in teaching principles are that; the students should be aware of the objectives of the lesson, the teacher should guide the students in revising the concepts that would lead to the principles and series of examples should be provided to aid the learning of the required principles.
- Discovery and inquiry/problem-solving methods are interrelated. In the inquiry approach, the student identifies the topic, formulates the hypothesis and collects the

data. The hypothesis is tested against the data. A conclusion is then drawn. This is retested against new data before a generalization is made.

- Play is an activity through which children learn real life activities using the "make believe" technique. Simulation means imitation. Simulation games is a term used for various stimulation exercises which possess the following characteristics:

  (a) Competitive.

  (b) They make use of mental and social skills.

  (c) Marked by chance.

  (d) Marked by clearly defined issues and view points.

  (e) Clearly rewarding.

  (f) Characterized by a regular, orderly progress towards a specified and realistic goal.

- In using simulation games, certain procedures are to be followed:

  i. the teacher should learn to play the game.

  ii. the teacher should decide on the groupings of the pupils as well as the sitting arrangement.

  iii. the class must be taught how to handle the materials to avoid destruction.

  iv. a brief explanation should start the game.

  v. the rules of the games must be understood by the pupils.

  vi. if there are enough copies of the game, each group should have one to play.

  vii. the teacher should go round and guide the pupils as necessary.

  viii. the teacher should call the attention of the class to common problems noticed.

  ix. there should be a discussion session at the end of the game.

- The general principles for using play method are: The play must be simple, straight forward and short. The chosen actors may memorize the parts or read them from paper. The stage must be located where every child can see and hear the actors. The important points of the play should be emphasized. A discussion session should end the play.

- In other forms of play activities, the objectives must be clear and there should be adequate materials. The teacher should guide the play and draw the attention of the pupils to important points. A short discussion should end the play.

- The advantages of simulation games includes;the presentation of the realities of life in simplified form to the level of any ability group. The pupils are involved and occupied. The games are motivating and the pupils learn unconsciously with pleasure. The mental ability of the pupils are utilised. The pupils develop certain confidence of ability to solve social problems in every day life. Above all, simulation games are

effective teaching technique to raise the intellectual, motivationals and retention levels of classroom learning.

- The advantages of play are: It motivates the learners to be fully involved in learning. Learning becomes concrete, true to life and the concepts are made simple. Plays aid retention and recall through imagery formation.

  Both simulation games and plays have their limitations.
  Simulation games are expensive.
  They are based on foreign cultures and therefore, complex.

- Plays are time consuming and require a lot of materials. The entertainment nature of play overshadows the concepts, information and subject matter it is supposed to convey. Therefore, pupils may find the transfer of learning from play to other situations difficult.

ASSIGNMENT

1. Clearly explain the steps to be taken when using the inductive approach in Problem-Solving.
2. Discuss the advantages and disadvantages of Problem- Solving Method.
3. Explain the steps to follow in teaching concepts.
4. Explain the steps to follow in teaching principles.
5. What are the procedures for using Simulation Games in the class?
6. What are the disadvantages of play?
7. What are the advantages of simulation games?

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UNIT 3: METHODS OF TEACHING II: TEAM TEACHING AND MICRO-TEACHING

INTRODUCTION:

Researches of various types in all areas of Education had been and are being undertaken in various countries of the world. In the area of Instruction (teaching) in the last few decades, many innovations and techniques had been introduced. One of such techniques is Team Teaching. Among the age-long teacher/class arrangements in our Schools are the one-class one-teacher arrangement and the one-class one subject-specialist teacher or rotation system. The Team- Teaching technique is a new innovation.

It was identified and named in the United States of America around 1957. But the practice had been used even in some parts of this country before 1957.

Micro-teaching, its importance and procedures for implementation are clearly explained and discussed in this unit.

OBJECTIVES:

By the end of this unit, you should be able to:

1. define what team-teaching means;
2. explain the concept of team-teaching;
3. define and explain what micro-teaching is;
4. explain the concept of Micro teaching;
5. explain the procedure of using the technique; and
6. identify the advantages and disadvantages of the technique.

HOW TO STUDY THIS UNIT:

1. Read through this unit once. You should note the important ideas as you read. Also as you read, look up unfamiliar words in your dictionary.
2. Then go back and study the unit step by step as arranged. Attempt all the activities given.
3. Try to observe all the rules stated. Do not forget to attempt the unit assignment. If you comply with all the instructions above, you will benefit from this unit.

THE TEAM TEACHING APPROACH

Team teaching is an instructional technique in which teachers get together to plan, implement and evaluate a teaching activity. The teachers may be those handling one subject or related subjects. They may be teachers of one class or a group taking a particular course or a unit of instruction. Thus, a teacher of English Language may plan and teach together with teachers of English Literature, History, Arts, Drama and Geography.

This is a departure from the age-long arrangement of a teacher teaching all the subjects in a class particularly in the primary schools. It is equally different from the rotation system. This is the practice in which teachers who 'major' or specialize in a subject teach the subject in some classes. Team Teaching is a cooperative teaching in a broad sense.

It is based on the concept that each teacher has his own area of specialization, preference or content mastery. It also recognizes that teachers vary in experience, exposition, interest, resourcefulness, voice and ability to control classes, etc. In the one-teacher, one-class system, students are at an advantage in the areas in which their teachers are good. They are at a disadvantage in the areas in which their teachers are weak. The concept of team- teaching is also based on the principle of harmonizing teachers' potentials in the interest of many pupils. Thus, many more pupils are exposed to the personalities and competencies of various co-operating teachers.

There are variations in the team-teaching approach. The variations may be based on content-strength or interest, methods or panel approaches, etc.

i. **Content-Strength or Interest approach**

In this approach, the teachers are assigned to teach the age group involving the whole class. A teacher takes a topic in which he is very good or in which he is very much interested. After he has taught, other teachers take their tutorial groups. The emphasis here is that, various teachers have the opportunity of teaching their special areas to the large group.

ii. **The Methods Approach**

By this approach, teachers take their turns in applying their special methods. Those who are competent in handling large groups take the large groups while others handle smaller tutorial classes. The consideration here is the method or technique to be adopted.

iii. **The Panel Approach**

According to this approach, teachers are put in charge of the large group. The consideration is neither their content ability nor their method specialization. They are there as a matter of choice to maintain discipline while the specialist is teaching. They may be assigned to some routine tasks while other teachers are involved with the tutorial groups.

There are a series of other approaches adopted as a result of researches or experiments. However, the success of the technique does not depend on the structure and organization employed. Rather, much depends on the co-operative planning, and close unity on the part of team members. Other vital conditions are free flow of communication, and sincere sharing of responsibilities among the teachers in the team.

USING TEAM TEACHING: ORGANIZATION OF THE TEAM

The members of the team could be many or few. This depends on the number of teachers teaching the subject in the class. Some members of staff in other areas of the school may be invited to join the team. For example, the team must have the blessing of the Headteacher of the school. He may not necessarily attend the team's meetings but he must be told of the plan and progress. The importance of the School Librarian cannot be overemphasized. He is very important to the team. He is required to get relevant books to the topic ready in the Library for the students' individual study. The Team also needs the services of a Typist/Clerical Officer. This member handles all the required typing and duplicating of handouts as well as photocopying of materials where necessary. In a nutshell,he handles all the clerical work of the team.

The services of a technician or educational technologist are needed. This personnel handles any electrical or electronic gadgets i.e. overhead projectors, slides, or film-strips, etc. The Time - Table master who may be the Assistant Headteacher (Vice Principal or Assistant Headmaster or Headmistress) should equally be involved. If Team Teaching is the approach to be used in the school or certain classes or certain subjects, he should be informed and involved so that he could reflect the programme on the Time-Table. You will discover that the members of the team include the class or subject teachers, the School Librarian, a Typist/Clerical Officer, and a resource material technologist, of necessity, the Headteacher (for his information and permission) and the Time-Table master must be involved. The leader (Chairman) of the team is usually the most senior teacher in the team. He coordinates and directs the activities of the team. He is the Chairman at the team's meetings. One of the teachers in the team is usually made the recorder (Secretary).

PROCEDURE FOR USING TEAM TEACHING

There are three stages in team teaching implementation. These are -

i. The whole class lecture

ii. The groups (streams) tutorial.

iii. The individual study.

i. **The Class Lecture** - This is usually conducted by the teacher assigned to handle the topic or as arranged in the team. He teaches the whole class. He is supported by the Educational Technologist who operates the electrical or electronic gadgets (overhead projector, film slide etc).

The whole class (comprizing all the students in all the streams of the class i.e. From 2A, 2B, 2C, 2D, 2E, 2F) may be assembled in a large hall for the lecture. Equally, where there is a closed circuit television the students may be in their different classrooms. The teacher would then teach from the studio and it will be relayed to the students in their classes. The real class-teacher would supervise the class to make sure that discipline is maintained. (This aspect of closed circuit television teaching cannot yet be practised in Nigeria. There are very few Universities in the country which has the closed-circuit television not

to talk of secondary or primary schools). The students are given assignments and told the books for further reading at the end of the lesson.

ii. **The Tutorial Groups** - After the class lecture had been given by the expert teacher; the students break into their groups in their class- rooms. There, their class teacher will give them a follow up tutorial when next they have the lesson. Usually,students have no opportuni- ties to ask questions during the whole class lecture. During the tutorials they ask questions on the points they did not understand. In the tutorial classes students exchange views with their colleagues. They are also advised on more books to consult in the Library.

Three points are worth noting here. First, all the team members are usually fully informed of the points to be emphasized during the group lecture. Secondly, the teachers emphasize those points during the tutorials. Thirdly, they also know the resource materials to be used; that is, the electronic gadgets and books. Thus, when the pupils ask questions, the team members know exactly what to say. On his/her part, the Librarian knows what books to direct the pupils to read for extra information.

iii. **Individual Study.** This is mostly carried out in the Library. The Librarian who is a member of the team is aware of the books to be consulted. These he makes available in the Library for the use of the pupils. Of course, the pupils consult him when they need his advice.

ADVANTAGES

Team Teaching has its advantages.

Eight are identified here.

i. It encourages the spirit of cooperation among the teachers and other workers in the school.

ii. The students are exposed to good teaching because they are taught by the 'expert' teachers in the school.

iii. All the students in the same class are exposed to the same teaching by the `expert' teacher.

iv. It allows for efficient use of the school staff. The expert teacher teaches the large class. He is supported by the other teachers in the team who give reinforcement.

v. The students come in close contact with many teachers and they benefit from it.

vi. The combining of several streams for instruction helps each child to find his place in the crowd, to respect it, to learn from its behaviour pattern, to contribute to its unity, and to feel the impact of group dynamics.

vii. Each teacher has the opportunity to thoroughly prepare his work. The division of labour in the team is an asset for thorough preparation.

viii. The teachers in the team learn from each other. They have the opportunity to listen to the best among them.

DISADVANTAGES

1. Team Teaching requires teachers with training and disposition to engage in team work. Many teachers may not have these qualities and the end result is poor performance.
2. Special facilities are required for team teaching. The provision of such facilities may be expensive.
3. The per-student cost of team-teaching is sometimes higher than the per-student cost of other techniques or methods of teaching because of the population and composition of the team members.
4. Large group teaching hampers the emotional, social, and academic progress of the students constant contacts with their class teacher.
5. The technique requires constant meeting. This takes the non-teaching members of the team away from their main jobs.

PROBLEMS OF OPERATING TEAM TEACHING IN NIGERIA

1. The teachers are not used to it. Personality clash may crop into the team when the technique is in operation.
2. There are no large classroom or halls for whole class use.
3. Many Schools do not have Libraries.
4. The problem of time for meetings may be an obstacle later.

ACTIVITY I

1. Define and explain what Team Teaching means.
2. Mention the various members of the Teams and their roles.
3. Explain what is done at the whole class lecture stage.
4. What are the advantages of Team Teaching?
5. What are its disadvantages?

MICRO-TEACHING THEORY

Micro teaching is one of the new techniques in teaching. This is used in exposing the student teachers into the art of teaching.

Micro Teaching was introduced at Stanford University, U.S.A. in 1963 by Doright Allen, Frederick J. McDonald and a group of the faculty members. This new technique is different from the conventional methods of introducing student teachers to teaching. In the conventional methods, student- teachers are attached to a school and they attempt to

implement recommended theories and practices. The teaching supervisors go round, to inspect, advise and assess the students. Often, many student-teachers panic in the presence of numerous students they have to face. The students also have to cope with presence of the supervisor who is often regarded as a critic. To overcome some of the problems associated with the conventional teacher training methods, Micro teaching was introduced.

Micro teaching is a technique of training student-teachers in teaching skills in a manner that the teaching is scaled down in terms of class size, time, task and skill. It could be simply defined as teaching miniature. It is one of the attempts to simplify the problems of normal classrooms. It is an attempt to use the simulation technique to break down teaching process into smaller and more easily understood units. The teaching involves four phases. They are:

Model Performance

Teaching - Record Stage

Play Back Critique.

Re-teach Session.

The activities which take place in the four phases show that Micro-teaching provides a campus laboratory experience. In such an experience, the student teachers practise in a non threatening environment. Importantly, opportunities are provided to help correct mistakes through its system of teach-critique-reteach cycles.

PROCEDURE FOR USING MICRO TEACHING

There are four phases in using Micro Teaching. These are:

i. Modelling.

ii. Teach-Record Stage.

iii. Play back critique.

iv. Reteach Session.

i. **Modelling** -

A recorded videotaped demonstration of an expert is shown to the student. He should have a clear understanding of the particular teaching skill. He must know what he should do and why.

This can be achieved in three ways.

(a) The first way is by the use of oral explanations and instructions.

(b) The second is by the use of written expositions and directions.

(c) The final way is by providing recorded demonstrations of the special teaching behaviours. These three ways show that the models may be in oral, written or video- taped recorded forms.

ii. **Teach-Record Stage -**

The student-teacher teaches about 5 students or his peers for about 5 to 10 minutes imitating the model. The student's attempts are to be recorded on video-tape for play back. The student-teacher is to be supervised by the supervisor and his peers during the attempts.

iii. **Play-back Critique (Feedback)**

Feedback or play back critique in micro teaching is the reports and criticism a student receives about his attempts to imitate certain patterns of teaching.

Thus, criticism is based on the examples of the model. The aim of play back critique is to tell student teacher about his performances.

The criticisms are to make him improve his teaching performances.

The criticism can be approached in three ways.

(a) Self-analysis. This means asking the student-teacher what good qualities and weaknesses he noticed in his attempt.

(b) Supervisor's Criticism - In this approach, the supervisor commends the student-teacher for his good performances and advises him on how to improve upon his weaknesses.

(c) Analysing of some aspects of the teaching skill. The supervisor calls the attention of the students to certain aspect of the attempt for critical observation. The use of video recording is very important at this stage. It will provide the basis for detailed discussion by the supervisor and students.

iv. **Teach - Reteach -**

After the criticism or feedback discussion, the student - teacher is told to put the suggestions into practice. He is given another chance to teach. The reteach may be after a day or thereafter.

ROLES OF THE TEACHER IN MICRO-TEACHING

The teacher serves as the supervisor. His other roles are listed below.

i. He introduces the skill.

ii. He observed the students practice.

iii. He advises and commends the students during the critique session.

iv. He helps in planning the reteach.

v. He may serve as the model.

vi. He is an assessor who rates the students attempt.

vii. He serves as a Resource Person to the Student Teacher.

ACTIVITY II

1. What makes some students panic when using the conventional methods in teaching practice?
2. Define and describe Micro-teaching
3. Mention and explain the three ways the Play back Critique

   (Feedback) can be approached.
4. What are the roles of the teacher in Micro-Teaching?

ADVANTAGES

i. Micro-Teaching provides the required teaching attempts before the student teacher goes into the class to face many pupils. This could otherwise, be embarrassing.

ii. It provides ©low risk" for the student-teacher and learners. A risk is taken when a student teacher who has never taught before goes and teaches about 40 pupils.

iii. It provides many short practices rather than the long session in the conventional method.

iv. The video recording shows the real teaching performance. This eliminates the usual student- teacher arguments in the conventional method.

v. It gives immediate feedback.

vi. It gives opportunity for rectifying mistakes quickly.

vii. The student-teachers are given the opportunity to see themselves on the video-tape as they teach. They could see their mistakes and correct them.

DISADVANTAGES:

i. It is expensive as it involves the use of many video and audio tapes.

ii. The pupils taught gain little or nothing from the teaching which is for professional development of the student-teacher rather than the content acquisition of the pupils.

MICRO-TEACHING: PRACTICAL

In the last section, the theoretical aspect of micro-teaching was treated. This aspect of teacher education was defined and the procedure in using the technique was explained. The advantages and disadvantages were also discussed. In this unit, the operational procedure of Micro-Teaching is examined.

OPERATIONS IN MICRO-TEACHING

The model teacher who may be the class-tutor or a video-taped expert teacher, the class- tutor who also is the supervisor, the practising student- teacher and his classmates are the personnel involved in a micro-teaching session. Some of the classmates serve as the `pupils'

while the others watch with the class-tutor. The procedure in using micro-teaching are broadly in four phases. These are:

i. Modelling Phase.

ii. Teach-Record Phase

iii. Play back Critique Phase

iv. Reteach Phase.

In practice, the detailed operations which we shall study in this unit are as follows:

i. The objectives of the skill should be made clear to the student-teacher.

ii. The modelling or demonstration of the skill. This may be a video taped or film of an expert teacher brought for the demonstration. Equally, the class-tutor may demonstrate the skill to the student teachers in the classroom. The demonstration is to be supported with verbal explanations of the aspects of the modelling which require more attention.

iii. The student-teacher preparation stage. The trainee plans a short lesson of about 5 to 10 minutes on a topic of his choice incorporating the demonstrated skills.

iv. The student teacher teaches the lesson to a small group of 5 pupils, his mates. His attempt is video- taped and or audio-taped for play backs.

v. Feedback or playback critique is another operation. At this stage the class-tutor/supervisor makes reinforcing remarks on the trainees performance. This may be in the form of asking for self-analysis from the student-teacher, or the supervisor. The video-tape and audio-tape should be played back to give the feedback. It should be noted that, both the good qualities and weaknesses in the attempt should be mentioned. This feedback is to give the student- teacher an insight into how he could improve on his performance.

vi. The replan is another operation. At this stage, the student teacher replans his lesson, incorporating both personal and supervisor's observations.

vii. The revised lesson is retaught to another set of pupils or classmates. The reason for the change of learners is to avoid the effect of boredom on the pupils or students. The reteach is also video-taped and or audio-taped.

viii. Another round of feedback takes place after the reteach.

PRACTICAL PROCEDURE FOR MICRO-TEACHING

The concrete steps involved in Micro-teaching as suggested by Singh (1977) are as follows:

i. **Orientation**: To attract the attention of student teachers and to stimulate them to use micro-teaching, there is the need to organise discussions on the theory of the technique as regards teacher education. The advantages and limitations of the technique should be known to the student-teachers.

ii. **Discussion on Teaching Skills**: Singh suggests that the concept of teaching skill be clarified first. Each skill to be practised should be thoroughly discussed before practice. Selected student-teachers should be trained in observing the teaching skill.

iii. **Presentation of Model Lesson**: The model lessons on the skills to be practised should be demonstrated by the model-teacher preferably in all the subjects chosen by the student-teachers.

iv. **Preparation of Micro-Lesson Plan**: The student teacher is expected to plan for a skill at a time.

v. **Micro-teaching Setting**: The following timing and setting are suggested by Singh:

(a) Time Teach 6 minutes

Feedback 6 minutes

Replan 12 minutes

Reteach 6 minutes.

Refeedback 6 minutes.

Number of Students - 10

Supervisors - 1 or 2.

Feedback by the Supervisor(s).

vi. **Simulated Condition**: The student-teachers (classmates) should act as pupils. The micro-teaching is conducted in the College itself.

vii. **Practice of Teaching Skills**

Singh suggests that five skills may be practised by a student-teacher, using the following processes:

1. Probing questions
2. Stimulus Variation
3. Reinforcement
4. Silence and non-verbal cues
5. Illustrating with examples.
6. Encouraging pupils participation.
7. Explaining.
8. Effective use of blackboard.
9. Set introduction.
10. Closure.

viii. **Observation of Teaching Skills**

The student-teacher's attempts are to be observed by the classmates as well as the college supervisor(s).

ix. **Feedback**

Immediate feedback may be given to the student-teachers individually.

x. **Teaching Time**

The teach-feedback-replan-reteach-refeedback, a complete cycle, is expected to take about 35 minutes.

Singh's suggestions may not be the same with the timing suggested by some other researchers.

Teaching Skills are numerous. Those suggested in (vii) are only a sample. You should suggest many of such skills.

SIMILARITIES IN TRADITIONAL TEACHING PRACTICE AND MICRO-TEACHING

Teaching practice, whether traditional or micro, has same ultimate objective. That is to produce effective teachers.

Both traditional teaching practice and Micro-teaching require:

i. Preparations before the student-teachers go to the classroom to teach. The preparation document made for each lesson is referred to as the Lesson Note or Lesson Plan.

ii. Intensive supervision by the teacher or supervisor.

DIFFERENCES BETWEEN TRADITIONAL TEACHING PRACTICE AND MICRO-TEACHING

i. The orientations of the two approaches are different. In Micro-Teaching the objective of a lesson is geared towards the student-teacher mastering a teaching skill. In traditional teaching practice it is geared towards the student-teacher teaching the pupils certain contents.

ii. In traditional teaching practice, the student-teacher is expected to teach many pupils i.e. 30 or more pupils in regular classroom settings. In micro- teaching only about 5 to 10 students are taught and often in a micro-teaching laboratory.

iii. In micro-teaching, the lesson duration is about 5 to 10 minutes. In traditional-teaching practice it is about 35 to 40 minutes.

iv. In traditional teaching, the student-teacher is expected to teach the pupils a number of facts and also exhibit mastery of some basic teaching skills. In micro-teaching, the trainee is expected to exhibit only one teaching skill.

v. Micro-teaching gives room for immediate feedback whereas in traditional teaching practice, the feed back is not immediate.

ACTIVITY III

1. Name the personnel involved in a Micro-Teaching Lesson.
2. What are the required electrical machines in a Micro-Teaching Lesson?
3. Mention some similarities in both traditional-teaching practice and micro-teaching.
4. Why is traditional teaching practice regarded as complex?

SUMMARY

- Team Teaching is an instructional technique in which the teachers of the same subject and class come together to plan, implement and evaluate a teaching activity. It is based on two concepts. Each teacher has his own area of specialization, preference or content mastery, and teaching ability, or technique. Secondly, that these qualities should best be shared by the class as a whole rather than a section of a class.

- There are various team teaching approaches. These depend on the experiment of each school. However, three are commonly in operation.

  They are:-

  i. Content strength or Interest approach,

  ii. The methods approach; and

  iii, The panel approach.

- Each team is made up of the teachers teaching the subject in the class, the Librarian, a typist/clerical officer, and a technician or educational technologist. The Time-Table master should also be involved. The Headteacher is to be informed. The most senior teacher in the Team should lead. A recorder should also be elected.

- The three stages of team teaching implementation are the whole class lecture, the groups tutorial and the individual staff.

- Among the advantages of the technique are the staff cooperation, and the fact that the students receive lectures from the 'experts' among the teachers. However, it is expensive to start using the technique particularly in Nigeria where halls and good Libraries are not available in many schools.

- Micro-teaching is one of the techniques used in teacher training institutions. Its major purpose is to expose the student-teachers to the various skills in teaching. The technique scales down the teaching in terms of class size, time, task and skill.

- Micro-teaching is carried out in four phases. Model Performance, Teach-Record Stage, Play back Critique and Reteach session.

- In modelling, oral explanations, written expositions, or video recorded demonstrations may be used. This will be imitated by the student-teacher during the Teach-Record Stage. The feedback may be self assessment or supervisor's criticism focusing attention on some aspects of the attempt.

- Another preparation and reteach follow. The cycle continues until the student-teacher masters the required skills. The teacher serves as an adviser, and a model. In some cases, he is an assessor and a resource person. The technique no doubt has its advantages. These include availability of examples to imitate, availability of immediate feedback and the opportunity to reteach. However, it is expensive in operation.

- In unit 8, the theoretical aspect of micro-teaching was treated while in this unit the practical aspects are discussed.The detailed operations include the analysis of the objectives of the skills, the demonstration of the skill, the preparation by the student-teacher and the actual teaching. The feedback, the replan, the revised lesson and the re-feedback are equally examined.

- Singh's (1977) suggests the concrete steps involved in micro-teaching. These include Orientation, Discussion on Teaching Skills, Presentation of Model Lesson, Preparation of Micro Lesson Plan, the Micro-teaching Setting, Simulated Condition, Practice of Teaching Skills, Observation of Teaching Skills, the Feedback and the Teaching Time. The similarities and dissimilarities between the two approaches were equally examined. It is explained that although the two approaches have a common goal i.e. producing effective teachers, there are some differences between them. These are evident in orientation, population of pupils taught, the duration of the lesson, the emphasis when teaching, the presence of immediate feedback, replan, reteach and refeedback in micro teaching. These are absent or delayed in traditional teaching practice.

ASSIGNMENT

1. Explain some of the approaches in use in Team Teaching.
2. Enumerate the procedure to be followed in the implementation stage of Team Teaching.
3. Examine the possible ways to provide a good model for the student-teacher.
4 In what ways is the Micro-teaching technique better than the conventional method?
5. Enumerate the detailed practice operation in micro-teaching.
6. Explain the steps to take in the practical use of micro-teaching.
7. What are the differences between traditional-teaching practice and micro-teaching?

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UNIT 4: PROGRAMMED/COMPUTER - ASSISTED INSTRUCTION, CLASS TEACHING AND PROJECT METHODS

INTRODUCTION

The concept of individualized instruction is extensively discussed. Among the techniques developed to achieve individualized instruction is Programmed Instruction (PI). The English writers prefer to call it Programmed Learning (PL) since it is learner oriented system of learning through self-instructional materials. The term Programmed Instruction (PI) is American. The view of the American writers is that the technique is designed to lead a learner through self instructional materials arranged in sequential order. The learner moves from the known simple things to the unknown complex knowledge and principles. Whether it is viewed from the English angle or the American angle the principles underlying the technique remains the same. However, you should know that the two terms Programmed Instruction(PI) and Programmed Learning (PL) refer to the same technique. In this unit, the term Programmed Instruction will be used. The importance of using the Class Teaching and the Project Methods of teaching is highlighted in the unit.

OBJECTIVES

By the end of this unit you should be able to:

1. Define what Programmed Instruction is.
2. Identify the principles of Programmed Instruction.
3. Identify the material devises used in the technique of Programmed Instruction.
4 define both class and group teachings.
5. identify the various grouping patterns.
6. define and explain what project method means;
7. explain the factors to be considered in planning a project;

HOW TO STUDY THIS UNIT

INSTRUCTIONS

1. Read through the unit once. You should note the important ideas as you read. Also as you read, look up unfamiliar words in your dictionary.
2. Then go back and study the unit step by step as arranged. Attempt all the activities given.
3. Try to observe all the rules stated. Do not forget to attempt the unit assignment. If you carry out the above instructions, then you will benefit from this unit.

PROGRAMMED/COMPUTER-ASSISTED INSTRUCTION

Programmed Instruction is a self-instructional approach to teaching. It is the kind of teaching that follows a sequence. This means that the learning materials is presented in an ordered, structured programme which has been prepared before the learner begins his task. It is characterised by breaking up of the learning content into small bits that lead a learner from what he knows to new and more complex knowledge and principles. The small bits of information are presented in an orderly manner in steps. Simple problems are also given in each step. The learner responds at each step. When his response is correct, a reinforcement is given by the immediate confirmation of the right answer or a correction of the wrong answers. The idea is for the first concepts of skills to be mastered first before new ones are introduced. The learner going through the material is aided by suggestions and hints. Also, there are frequent repetition of key terms and concepts.

HISTORY OF PROGRAMMED INSTRUCTION

Programmed Instruction is based on the principle of operant conditioning developed by Professor B.A Skinner of Harvard University, USA in the 1950s. However, Socrates was said to be the first programmer. He developed a programme in geometry which was recorded by Plato in the dialogue Menu. A psychologist E.L. Thondike (1874 - 1949) and Sydney L. Pressey of Ohio State University were among known names which contributed to the development of Programmed Instruction.

TEACHING MATERIALS

Programmed Instruction is operated through two main materials or devices. These are Programmed Textbook and Teaching Machines.

A Programmed textbook is a self instructional textbook. It is a written programme in a subject field in which the subject matter has been broken into small details of the learning sequence. The programme is written as a series of easily answered questions that lead the student to logical conclusions foreseen by the programmer. The student reads the question and writes his answer. This is checked against the correct answer which is written on the same page or on the designated page. The immediate knowledge of result reinforces learning and reduces the possibility of fixation of wrong answers.

The teaching machines are devices for self instructional materials. The effectiveness of the machine depends on the material (programmes) used in it. In a well designed machine, one frame is presented at a time and the student operating it brings each frame into view as it is needed. The learner reads the frame and writes his response to the information presented. The machine is then operated to show the correct answer. Meanwhile, the machine must have moved the attempted response into a covered but transparent box so that it can be seen but cannot be changed. Where the answer is correct, the learner's effort is rewarded and reinforced. He is motivated to attempt the next frame. He is expected to make a correction where the answer is wrong.

The programmes used in the programmed textbook and the teaching machine may be Linear or Branching programme.

In the linear programme, the student has to think and recall answers while in branching programme, multiple-choice questions requiring recognition of correct response are given.

OPERATIONS OF PROGRAMMED INSTRUCTION

1 The subject matter is broken into small steps in sequential order.

2. A small bit of meaningful information called frame is presented to the learner.

3. The learner reads the frame and is expected to give an answer by writing a response.

4. He checks the correct answer written on the same page or a designated page in case of a programmed textbook. In case of a machine, the student operates the machine to bring out the correct answer. Seeing the correct answer gives an immediate feedback which reinforces the correct answer and corrects the wrong response.

5. The learner goes on to the next frame and responds to the information given. The information-answer-feedback (correct answer) cycle is repeated. This is referred to as the stimulus-response-reinforcement cycle.

PRINCIPLES OF PROGRAMMED INSTRUCTION

1 The principles of small steps. The subject matter is broken into meaningful pieces of information. Each piece of information is called `FRAME' One piece of information (frame) is presented to the learner at a time.

2. The principle of Associative Learning. The contents of a frame is closely related to the contents of the one before and after it. There is strong inter-relationship among the frames.

3. The Principles of immediate feedback or reinforcement. After writing his response, he is provided with the correct answer to the question in the frame. If his response is correct he is reinforced. In case his response is wrong he has at least read the correct answer.

4. The principle of active response. The learner is given questions in each frame. These he responds to. The learner this way remains busy and active. This means that the learner is actively involved in the learning process.

5. Self pacing. The learner proceeds at his own pace. He is not forced to move faster nor slowed down by the other members of the class. The principle of individual differences is hereby respected.

6. The principle of knowing the learner's progress. The teacher can easily assess the progress of the learner through his responses. Equally, the learner can easily evaluate his performance.

7. The Principle of mastery learning. The learner is expected to master a frame before moving to the next.

ROLES OF CLASSROOM TEACHERS IN PROGRAMMED INSTRUCTION

It is true that this is a self instructional technique of learning. This does not make the classroom teacher useless, instead, he is fully occupied as he has to play four major roles. He is expected to direct, analyse and teach. As a director, the teacher directs the learning experiences of the students as a specialist in education. As an analyst, he continually analyzes and evaluates the progress of the students on the basis of the results from their daily work and frequent testing. As a tutor, he monitors and personally teaches students during their study when occasions demand for it. Occasional lectures to introduce a new topic or sum up a section of the source or a unit completed by some members of the class is recommended.

The class teacher also serves as a consultant in many discussion periods which may come up between the Teacher and a student. The discussion may also be between the teacher and the students or among the students to clarify more difficult parts of the programme.

ADVANTAGES

Many educationists have acknowledged that programmed instruction is a more effective method than the traditional methods of teaching. It has many advantages.

1. Through Programmed Instruction, teaching is individualised. It is more or less having individual tutors for each student. This takes care of the issue of individual differences in learning.
2. In a given period of time, more content is covered than by traditional methods.
3. Students actively participate in the learning process at all times. This trains them to take more responsibility for their own learning.
4. Due to the fact that the students are actively engaged, many problems of discipline are greatly reduced. The students have no time to engage in acts of indiscipline.
5. As frames lead progressively from simple to difficult problems, students find it easier to follow than the unstructured traditional methods.
6. Students work at their own pace.
7. The immediate feedback of knowing the correct answers reinforces the students' efforts.
8. Immediate feedback avoids the fixation of incorrect responses.
9. The possibility of remedial reinforcement is another advantage. Where the student's answer is not correct he has the opportunity to correct himself. He knows the correct answer.
10. The immediate knowledge of result is no doubt a motivating factor for the learner to cover more frames.

DISADVANTAGES

1. It is expensive. It involves the use of machines and programmed textbooks. Most of these are to be imported. The cost is much and the country may not be able to afford it.
2. There are not many trained personnels i.e. teachers and programmers in the use of the technique in the country now. Thus, we cannot boast of programmes which will match our needs in the country.
3. Programmed instruction may generate boredown. There are no varieties in the approach to the use of the technique. The learner keeps to the same process, programme after programme.
4. The technique is limited to questions with correct answers. Questions demanding for originality and creativity have no place in programmed instruction.

ACTIVITY I

1. Define Programme Instruction.
2. On what basic principles is Programmed Instruction based?
3. Enumerate the steps in the operation of Programmed Instsruction.
4. What are the roles of the classroom teacher in programmed instruction?
5. What are the disadvantages of the technique?

GROUP AND CLASS TEACHING

Among the oldest methods of teaching is the class teaching method. It closely resembles the Lecture method but it differs in the population of pupils the teacher faces at a time. Whereas in a class, a maximum of 35 to 40 pupils are recommended, the number of pupils involved in the lecture method is usually larger by far. The group teaching occurs when the class is sub-divided into smaller groups for effective instruction.

Methods are often divided into two groups i.e. the teacher centered methods and the child centered methods. Where a method belongs, depends on the dominant figure in the teaching learning activities i.e. either the teacher or the pupils. Often many people fail to realize that the methods could equally be divided into two groups under the different considerations. The division could be organisational methods and the communication methods. For example the CLASS, the GROUP and the INDIVIDUAL METHODS are basically the organisational structures on which the other methods operate. They have to do with how the pupils are organised or how the class is structured. Other methods i.e. lecture, discussion, discovery, e.t.c. have to do with communication activities between the teacher and the pupils.

CLASS AND GROUP TEACHING

Class teaching takes place when the teacher instructs the pupils in the class collectively as a unit.

Group teaching takes place when the pupils are divided and taught in groups and not as a unit.

It will be noticed that these definitions are silent about the form the teaching is. What is fundamental is the manner the pupils are arranged or organised. We should take note that grouping takes place for adjusting the curriculum to the needs and abilities of the class members. It is a means to an end. The end result is to make the pupils learn more effectively than they would have done in the larger class. However, in class teaching, all the pupils are taught the same thing at the same time in the same way. This means that all the pupils are treated equally.

If we look at the class teaching from the communication point of view, we are then saying that it is another Lecture Method or lecture method scaled down. However, we should realize that it is the organization of the class that earns the method the name `class teaching'. We should also realize that for class teaching to be effective other methods should be used alongside with the lecture method. However, in class method all the pupils are taught together as a unit. There is no discrimination or other considerations to separate the students. This aspect may have its pitfalls but psychologically it has its advantages as regards the ego of the pupils. Whatsoever other methods we may use, it is obvious that we cannot do but use class method for one reason or the other. At least it is useful in introducing a new topic or rounding up a topic.

GROUP METHOD

KINDS OF GROUPING

Teachers group their pupils in various ways according to the prevailing situation in the class, their experiences with the pupils and their objectives.

Thus, the grouping may be:

1 Ability grouping

2. Sex grouping

3. Interest grouping

4. Mixed ability grouping

5. Random selection grouping

6. Social or natural grouping

7. Needs grouping.

    1 In the ability grouping, pupils are grouped according to their intelligence or academic ability. This may be right across all subjects or according to each subject. Grouping in this way allows the pupils to learn at their own pace. However, much as the brilliant group may be proud of their group, those in the weak group may be demoralised or unhappy.

    2. In sex grouping, the pupils are divided according to their sex. This is used mostly in physical education in upper classes of the primary school and above.

3. Interest grouping. Pupils are divided according to their interest. Their common interest should lead to social interaction, exchange of ideas and better learning.

4. **Mixed ability grouping.** In this grouping, brilliant, average and dull pupils are grouped together. This is to avoid the lapses of ability grouping. In this grouping, the brilliant pupils are expected to encourage or pull up weak ones. However, the teacher must not allow the brilliant ones to be pulled down or slowed down.

5. **Random Grouping.** Pupils are chosen haphazardly without any consideration. This is a good grouping when one considers fair play. But it may turn out to be that many of the pupils of the same ability, sex, or interest may fall into the same group.

6. **Social or Natural Grouping**. Pupils are allowed to be in the group of their choice. They may sit with their friends or anyone they feel to interact with.

7. **Need Grouping**. This grouping occurs when pupils who have the same problem are put together for remedial work. They need special attention. This is usually in one subject or the other. Pupils with problems receive better attention in this grouping.

There should be no rigidity in grouping. A child who is good in one subject may be poor in another. He may not benefit from sitting with those who are good in the subject where he is poor. Grouping requires careful planning and organization.

In the teaching of groups, there is the need for the teacher to prepare and lay out the materials which he is going to use for each group. The class must be under the good control of the teacher. The members of each group should interact with each other freely.

ADVANTAGES OF CLASS TEACHING

1. It saves time and effort. The whole class is taught the same thing at the same time. The common problems are equally explained to the class at once.

2. The children's desire to work together with others is utilized in class method. This way they learn from each other.

3. Class teaching affords the children the opportunity to compete among themselves. The challenges posed by competition could make the weak pupils to work harder.

4. It also gives the pupils the opportunity to work co-operatively as a team rather than as individuals.

5. In the classroom, pupils see each other's work. This gives them the opportunity to compare and appreciate good work.

6. The positive effects of the crowd could be instrumental to the progress of some pupils.

7. Usually the emotion of pupils can be more easily aroused in the class than with individuals.

DISADVANTAGES OF CLASS TEACHING

1. In class teaching as in the Lecture Method, the teacher cannot cater for the pupils' individual differences.
2. The weak students can easily hide among the other pupils in the class without doing much.
3. Teachers are often misled to believe that most of the pupils understand the lesson because a few of them answer questions correctly.
4. Class teaching is teacher-centered.
5. Class method is an organisational method. Other methods are to be used with it before there can be effective learning.

ADVANTAGES OF GROUP TEACHING

1. This method is child-centered. As the population of each group is small, each child is noticed and he is able to get attention of the teacher.
2. The Teacher is able to keep the attention of a smaller group better than that of a class.
3. The pupils learn to depend on themselves for their studies when the teacher is busy with another group. Thus, it satisfies one of the advantages of individualised instruction.
4. Working in a group gives the child the training for future cooperative living. We live in groups. For example, a family is a group. The group affords the teacher the opportunity to teach the pupils the spirit of group living.
5. It is easier to provide each student in a group the necessary teaching aids and books than giving each member of a class.
6. The pupils feel the presence and social interaction of the teacher more in a group than in a class.
7. Each group is able to go at its own pace. The brilliant groups can go fast while the weak ones are not unnecessarily hurried up.
8. The group size is very good for practices and drills.
9. Children gain confidence when they work with their colleagues of the same ability. They perform relative to the others. The confidence may lead to progress.
10. Grouping may give a challenge to some children particularly if the grouping is according to their abilities. A child in group `D,' a weak group, who has a friend in `B' may be ashamed initially. This shame may make him determine to work harder to be at par with his friend. Equally, the friend in `B' ,may be more concerned about the

weakness of his friend and may decide to work with him during their lecture or free time to pull him up.

DISADVANTAGES OF GROUPING

1. Grouping gives the teacher more work. Instead of planning a single work for a lesson, he may end up planning about three or four.
2. In ability grouping, a child who finds himself in `D' group, the weak group, may be ashamed, discouraged and withdrawn.
3. Grouping tends to categorize or compartmentalize the pupils. The positive effects of a class are removed.
4. Troublesome children may have the chance to disturb the class when the teacher is busy with another group.
5. Competitions are limited in group teaching. This does not help in making progress as competition is known to be one of the instruments for progress.
6. Social interactions and exchange of ideas among the class pupils are limited to a small number of pupils. This is so because they now see themselves as members of a class within the class.

ACTIVITY II

1. (a) Define class teaching
   (b) Define group teaching
2. What makes the class teaching different from lecture method?
3. What are the disadvantages of class teaching?
4. What are the advantages of group teaching?
5. What are the disadvantages of group teaching?

THE PROJECT METHOD

John Dewey an American Philosopher, argued that education should prepare the child for the unknown future. It should not merely fit him into his society. He further stated how education can do this. It should allow the child to take full part in the life of his village and the wider neighbourhood. Dewey's followers developed this view to what we have as the Project Method in schools today. What Dewey's view implies is that the child should be educated in the manner he lives in the society. That means learning by doing in the pattern the activity is done in the society.

The project method is a process of learning or a study carried out by learners in real life situation. This may be carried out individually in groups or class, under the guidance of the teacher to achieve set objectives. This definition describes the characteristics of the method. The project is essentially a learning unit designed and conducted by the learner in true-to-life

manner of the environment. Students working under the project method have more freedom and autonomy to decide on what and how they want to learn. They are free to perform their investigations the way they deem best. That means that the students decide on the topics they want to work on. They also decide on how to collect their data, and the analysis model to employ. They also draw the conclusion. But this does not mean that the teacher is idle. The teacher is not expected to teach as such. His main role is to guide the activities going on in the class through discussion, advice, counseling, conference, or instruction be it in written or oral form.

TYPES

A project may be in:

1. Theoretical form or
2. Practical form

This depends on the type.

Onwuka (1985) identified four types of projects.

1. The first one is the objective type (practical activity) i.e. building a table, a football field, writing a play, etc.
2. Another type is the Aesthetic type - i.e. appreciating a picture or music.
3. A third type is the problem type - i.e. ascertaining the development and growth of towns etc. The purpose of this type is to straighten intellectual difficulty or solve some problems.
4. Finally there is the skill project type - i.e. learning to play musical instruments, etc. This is to obtain some item of knowledge.

What determines the type or classification of projects are the objectives and nature of the projects.

USING PROJECT METHOD

1. Project method can be used in all subjects but not in all topics. This may be because of the nature of the topic or the problem of time-table or the nature of the education system which is examination centered. There are not many resource materials and appropriate books in our schools. The project may be undertaken by each student in groups or by the class as a whole. Equally, the project may be for a short term covering few lessons or for a long term which may cover some lessons for days.

There are four stages in using project method. These are:

1. Planning Stage.
2. Class or site Organisation stage.
3. Project implementation stage.
4. Assessment stage.

PLANNING STAGE

In planning to use the project method the teacher has to consider:

i. the overall interest of the course in advising the students on their topics;

ii. the quality and justifications of the objectives set by the students;

iii. the alternative methods to teach the topic and justifications for choosing project method;

iv. the available resources and space;

(v) that the activities planned for the project could sustain the students' interest as well as providing useful results;

(vi) the result in line with the course requirements.

ORGANIZATION STAGE

(i) The teacher divides the students into groups (when necessary) in a way that they are mixed, cutting across their ability and differences.

(ii) The teacher should arrange the class in a manner that the students do not disturb one another.

(iii) The resource materials should be easily acceessible to all the students.

(iv) The Teacher should equally be accessible to all the students.

PROJECT IMPLEMENTATION STAGE

(i) The students should be fully aware of what the project is all about.

(ii) They should have the freedom to conduct the project the way they feel best to achieve their set objectives.

(iii) The teacher should be in full control of the class.

(iv) He should make sure that order is maintained in the class.

(v) He should not allow indiscipline or playfulness.

(vi) The students should be free to ask for help or explanation from one another when facing any problems.

(vii) The teacher should be a guide and a resource person.

(viii) The students' findings should be compiled and reported to the class.

(ix) Resource materials used should be returned to their places at the end of the project.

ASSESSMENT STAGE

(i) A review of the objectives. The collection and analysis of data of activities performed and generalisation drawn should be made after the project.

(ii) Mistakes made should be marked or recorded for correction.

(iii) The generalisation drawn should be made known to the class.

(iv) The findings should be accessible to the students for consultation or appreciation.

ADVANTAGES

(i) The students are fully involved in the project.

(ii) It is child-centered.

(iii) It is a natural approach to learning.

(iv) It encourages learning by doing.

(v) It calls for the use of the students' experiences.

(vi) It encourages creativity on the part of the students.

(vii) As the students are free to determine their goals, they could be motivated to succeed.

(viii) The sense of failure is highly reduced among the students.

(ix) The method is useful in unifying school subjects. The students are able to relate the instruction in different subjects.

(x) The method makes school work real to life.

(xi) The students have opportunities to practice their communication skills.

(xii) It fosters good spirit of cooperation among the students.

(xiii) At the end of the lesson, the students learn more about the topic or skill.

DISADVANTAGES

(i) It is time-consuming.

(ii) It is expensive as it requires many resource materials.

(iii) The class may be in chaos as the students move about placing materials here and there.

(iv) Atimes order and discipline may be difficult to maintain.

(v) Some school subjects may suffer under this method.

(vi) It is difficult to choose a subject that is of interest to all students.

(vii) This method can be used in all situations.

(viii) It may be a problem to schedule a project as it may disrupt the school time-table.

ACTIVITY III

1. Define and explain what project method is.
2. Explain four various types of project method.
3. Give any four reasons why the project method cannot be used in all topics.
4. Mention any four points to take note of at the organisation stage.
5. Name any four advantages of the project method.
6. Give any five disadvantages of the project method.

SUMMARY

- Programmed Instruction is a self-instructional approach to teaching. It is based on the principle of operant conditioning of professor B.F. Skinner of Harvard University. The two main mediums of teaching are the programmed text books and the teaching machines.
- In operation, the subject matter is broken into small steps in sequential order. A small bit of meaningful information called frame is presented to the learner at once. He checks his response against the answer which is equally available in the media. If the answer is correct, the learner goes to the next frame. If he is wrong, he is expected to go over the frame and master it before proceeding to the next.
- Other principles present in programmed instruction are the principles of small steps, associative learning, reinforcement, active response, self pacing and mastery learning. The teacher plays the roles of a director of learning, analyst of the students' progress, a teacher as well as a consultant.
- The advantages of this technique include individualised instruction and the coverage of a wide area of study within a limited time. Equally, the students are actively engaged in the lesson. This controls indiscipline in the class. The learner works progressively at his own pace. The immediate feedback associated with the technique gives reinforcement to the learners' efforts.
- However, to procure machines and programmed textbooks for the technique is expensive. Equally, there are not many trained personnels, i. e teachers and programmers for such an innovation in Nigeria. Programmed Instruction may generate boredown because of lack of varieties of methods used. Equally, it is limited to questions with straight forward answers.
- The class method is one of the oldest methods of teaching. It is similar to the Lecture Method. The difference between them lies in the population of the learners in each method. The Group method takes place when the class is divided into groups for teaching- learning purposes. Both the class and group methods and individual method can be classified as organisational methods while the others can be termed communicational methods. Each complements the other for effective teaching and

learning. Whatever method we use, class method is still useful in introducing a new topic or rounding up a topic.

- Among the possible groupings used in schools are ability, sex, interest, mixed ability, random, social or natural and needs groupings.

- The advantages of class teaching include:

  1. It saves time 2. The pupils work together as a team. 3. The pupils compete among themselves 4. They learn from each other. 5. They see each others works compare and appreciate good work. 6. They enjoy the positive effects of the crowd. 7. They can be easily aroused emotionally in a crowd.

- The disadvantages are:

  1. There is no consideration of individual differences.
  2. The weak students can easily hide in the class.
  3. The teacher is often misled to believe that all the pupils understand his lessons.
  4 It is teacher-centered.
  5. It requires the use of other methods before there could be effective teaching.

- The advantages of group teaching are:

  1. It is child centered. 2. The teacher is able to keep the attention of the smaller group better than the class. 3. The pupils learn to be independent when the teacher is busy with another group. 4. Working in a group gives the training for future life living. 5. It is easier to provide each child in a group with materials. 6. The pupils feel the social interaction and presence of the teacher more in a group than in a class. 7. Each group goes at its own pace. 8. The small groups are good for practice and drills. 9. Children gain confidence when they work with their equals. 10. Grouping may give some children the challenge progress.

- The disadvantages of the grouping method are:

  1. The teacher is overlaboured. 2.Weak pupils may be discouraged. 3. the pupils are rather compartmentalised. 4. Troublesome children have opportunity to disturb when the teacher is busy with another group. 5. Social interactions and exchange of ideas are limited to a few number of children in a group.

- The idea of project method could be traced to John Dewey. The method is a study activity carried out by learners in real life situation. Unlike many other methods, project method gives the students the freedom to determine the topic they like to work on. Equally, the process of collecting and analysing data and drawing of generalisation are left to them. The teacher serves as a guide and resource person. The project may be theoretical or practical. There are four stages in using the project method. These are the planning, the organisation, the implementation and the assessment stages. The method has its advantages and disadvantages. The advantages include the fact that it is child centered. The students are given freedom to do their

activities in their own ways under the guidance of the teacher. Compared with some of the other methods, i.e. lecture method, project method is time consuming. It is equally expensive in terms of resource materials.

ASSIGNMENT

1. Explain the two main media used in programmed instruction.
2. What are the advantages of the technique?
3. What are the advantages of class teaching?
4. Enumerate the disadvantages of group method?
5. What are the points you take note of when planning to use project method?
6. Carefully examine the principles which will guide you during the implementation stage of project method.
7. What are the advantages of project method?

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