Introduction

As a teacher of higher education you are allocated certain portion of the syllabus to teach to the students in your classes. Mostly the size of a class in our country varies from 40-120. The portion of syllabus that is allotted to you may be so that you have to teach them on your own or with the help of other teachers and experts. You may avail the infrastructure facilities in your institution to teach the students. Generally the infrastructure facilities that are available in our Indian colleges and universities are classroom, blackboard, media, hardware, laboratory and library etc.

When you start preparing for teaching you must realise that the students are not all prototypes. They belong to various sections of the society, having various interests, aptitudes, and abilities. It is generally seen that a large number of students are of average abilities, a few are not interested in studies, and a few are trouble makers. However, realising the diversity, you expect certain level of output for your teaching. This includes both short term and long term output specifications. Here you play the role of a systemist.

You as a teacher have to plan out your teaching for all the contents/topics given to you for teaching. So, the question before you is how to go about it. You as a teacher must have some ideas as to what are the different strategies that you follow in teaching your subject whereby you feel that you could achieve maximum objectives of teaching.

Make a list of the methods that you have followed and compared it with ones given below.

i) Explain with illustrations
ii) Give detailed notes
iii) Carry out demonstrations wherever possible
iv) Organise laboratory experiences
v) Organise field trips
vi) ........................................

A teacher thus follows a number of alternatives in order to achieve various output specifications. These alternatives are called input alternatives, because they act as inputs to achieve some outputs. Input alternatives may be relatively more teacher-controlled or learner-controlled. This means, when the degree of participation of the teacher is more, or when he determines the exact process including the pace of presenting the messages, their sequence, etc., the alternative is known as teacher-controlled input alternative. Similarly, in the learner-controlled input alternatives, the degree of participation of the learner is more in comparison to the participation of the teacher. This means the pace of learning, the time at which to learn, the sequence of the steps to go through while learning and, to some extent, even “what to learn” - the final output is determined (not necessarily designed) by the learner. The present unit deals with a few teacher-controlled input alternatives. In this connection, we will discuss lecture, demonstration and team teaching.

Learning outcomes

After going through this Unit, you will be able to:

- organise your messages/methods of presentation and give an effective lecture;
- plan classroom demonstrations to teach concepts, principles, etc.;
- organise team teaching with your colleagues;
distinguish/select the method according to the instructional objectives; and
evaluate the role of lecture, demonstration and team-teaching in the teaching-learning process and combine the lecture method with other methods and media.

**What is a lecture?**

One of the most common alternatives used by those at the college level is communicating directly to the students where the talking by the teacher is the most predominant activity, and it is called ‘lecture’. ‘Lecture’ can be talking to the students or talking with the students. When it is talking to the students, it takes the form of one way communication in which the teacher plays an active role and remains the main focus. It may take the form of two-way communication when the teacher talks with the students. In this kind, the lecture becomes a question-answer or discussion activity instead of merely giving information.

Figure 1: Is it a lecture?

Lecture, as a method of instruction can be traced back to the time of the *Vedas* and the *Upanishads* in our country, or to the Socratic dialogue in the Greek context. In Vedic period, a lecture was given through question-answer method [with the Shishya (student) sitting by the side of the Guru (teacher)]. In the medieval period, however, a preacher (as in a church or a temple) used lecture as a one way communication, since, in most of these situations, the group of listeners was large.

But with the advent of the printing technology, and of late, of the information and communication technology, the role played by a lecture is being redefined. Unlike the past, when it was equated with mere oratory, it is now seen in a different context. Lecture, once considered to be the sole source of information, is now being treated as only one of the different sources of information available to the learners. Apart from its major function of information-giving, it plays certain unique roles which cannot be performed by other inanimate sources. Firstly, the teacher may use it to motivate the students. It is through listening to lectures, that students are attracted to different areas of study. Secondly, the teacher may use it to integrate various sources of information, and use it as a thread which brings different sources of information into one garland.
Unlike the common belief, the lecture, as a method of instruction, can be used in a structured way. Thus, lecture follows some specific steps through which it is carried out. Let us discuss these in the following sub-section.

Steps in a lecture

Lecture, as a method of instruction, mainly follows two steps, i.e., Planning and Delivery. The delivery of a lecture is again divided into three phases. These are the introduction, the development and the consolidation phases.

Planning of a lecture

We should dispense with the idea that a lecture does not require planning. An unplanned lecture hardly achieves the objectives of classroom instruction. When we talk of the planning of a lecture, it entails a number of things. The teacher must prepare a lesson plan for the lecture to be delivered. This contains the instructional objectives to be achieved, the amount and nature of content to be covered, the kinds of audio-visual aids that are to be used, class size and nature of students for whom lecture is to be prepared, kinds of questions to be asked, the kinds of other interactional modes to be used, the feedback mechanism to be used, etc. In disciplines which require laboratory work, the teacher must ensure the required logistics inside the classroom such as blackboard, charts, OHP, laboratory equipment to be used, the seat arrangement of the class, and the like. Thus, planning a lecture boosts the confidence of the teacher in handling the class. He/she knows in advance, what to do, when and what not to do. Sometimes, the teacher can plan for humourous interludes, jokes, etc. to make the lecture more interesting. You will know more about this in Block 2, Unit 7.

Delivery of a lecture

As it has already been mentioned, delivery of a lecture is done generally at three phases. Let us now discuss these.

Introduction of a lecture

Sometimes, the introductory phase is also called the warm-up phase. The main task of the teacher here is to establish rapport with the students, create interest and motivation amongst them and gradually lead the learners to the next phase. At this stage the teacher relates the new topic to the one already taught and to the previous experiences. The main function here is to arouse interest and motivate the students. The teacher also uses the blackboard or any other visual medium to highlight the theme. Some of the examples of planning an introduction of a lecture are given hereunder.

A. Plan an introduction to catch the listener’s interest

Suggestion: Raise a question to be answered by the end of the lecture.
Example: “By the end of the lecture, you should be able to answer the question. ‘Are essay test questions better than objective test questions?’”

Suggestion: Explain the relationship of lecture content to laboratory exercises, homework problems, professional career interests, etc.
Example: “Today, I’ll lecture on cost-of-living indices, a topic in macroeconomics which will help you understand the recent discussions related to inflation.”

Suggestion: Relate lecture content to previous class material.
Example: “For the past few weeks, Skinner, Osgood, and others who take a behaviorists view of language acquisition have occupied our attention. Today, I’ll introduce another different perspective on language acquisition and learning. We’ll spend the rest of this week and the next on understanding this view and compare with the behaviouristic position.”
Alternative: Ask a student to summarize previous course content.

B. Provide a brief general overview of the lecture's content.
Example: "In Victorian England the conflict between religion and science was well reflected in the literature of the time. Today, we'll look at two poems, 'In Memoriam' and 'Dover Beach', which illustrate this conflict."

C. Tell students how you expect them to use the lecture material.
Example: "Today I'll offer a specific model of evaluation and illustrate its applicability in several kinds of settings. When you meet in your discussion groups this week, you'll be asked to apply the model."

D. Define or explain unfamiliar terminology.
Example: "In Physics, the term 'work' has a precise technical meaning. The work done by a force, F when the object on which it acts moves a distance q (drawing on the board) is defined by Work = Force x Displacement or W = F.q. It is assumed that F does not change much during the motion through the distance q. Now, let's look at this diagram and see how will you understand the definition of work."

Development phase
This is the most important phase of a lecture, because the transaction of ideas and information between the teacher and the learner takes place here. The teacher explains the concepts and principles, provides facts, data, figures, etc., to the learners. In order to explain the content matter, the teacher cites various examples, uses various communication aids, uses analogies and illustrations, etc. The teacher, when required, adopts different non-verbal communication techniques such as gestures, postures, etc., to facilitate the teaching activity. During this phase, the teacher should be cautious of his lecture otherwise it becomes ineffective.

The following questions relating to Lecture Delivery should be considered throughout the development phase.

For vocal delivery
Do you:
1. Cue important ideas by varying speech rate, volume and pitch?
2. Speak to students and not to the blackboard, walls, notes or floor?
3. Enunciate clearly?
4. Let your sense of humor show?
5. Avoid repetition of pet words or phrases (e.g., okay, you know, uh)?

Physical delivery
Do you:
1. Establish and maintain eye contact with your students.
2. Use gestures and physical movements which complement your verbal statements (e.g., looking at students while asking for student questions)?
3. Practice in advance with audio-visuals?
4. Avoid using distracting gestures or physical movements (e.g., grooming, pacing)?

Consolidation phase
This is the concluding phase of a lecture. Here the teacher recollects whatever he has covered during the course of lecture. He then summarises the main teaching points of the lecture either verbally, or by writing them on the blackboard or by using OHP. The teacher
also asks a few questions on the content matter covered, in order to evaluate the students’ understanding of the lecture. Through these questions, the teacher gets to know the learning difficulties of students and accordingly modifies his teaching. The teacher also gives some take-home assignments to the students which they are expected to complete and bring back for the teacher’s remarks. The teacher also informs the students as to what the next lecture will deal with.

Figure 2: An ineffective lecture

Self-assessment

1. Given is a list of statements. Put a tick mark (✓) against the statement which is true and cross mark (✗) against that which is false.
   
a) Lecture is nothing but oratory.
   b) Lecture is a method in which both the teacher and the students are active participants.
   c) There are other sources of information besides the lecture.
   d) There is no need to prepare a lesson plan for a lecture.
   e) The teacher should receive feedback from time to time in a lecture session.
   f) Effectiveness of a lecture depends on the teacher’s content competency only.

2. Fill in the blanks with appropriate words:
   a) The introductory phase of the lecture is otherwise known as the ........................................ phase.
   b) The input alternative in which the teacher takes the major role is called ............................
   c) Planning of a lecture builds up................................................... in the teacher to face the class.
   d) The transaction of teaching and learning between the teacher and the students takes place in the ........................................ phase.
Assessing Lecture

The quality and effectiveness of a lecture may be assessed with the help of a Lecture Appraisal Scale. It is a seven point appraisal scale. You can use this scale to assess the quality of your lecture.

**Lecture Appraisal Scale**

1. Name of the teacher:
2. Title of the Lecture:
3. Date:
4. Assessed by:

**Instructions**

Assess the performance by encircling the number which most closely indicates your assessment of teacher's performance on each of the following items:

<table>
<thead>
<tr>
<th>Description of components</th>
<th>Extremely Weak</th>
<th>Very Weak</th>
<th>Weak</th>
<th>Average</th>
<th>Good</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduction aroused student's curiosity and interest in the lecture</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2. Content was organised effectively</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3. Explanations were clear and coherent</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4. Examples were simple and meaningful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>5. Pace of presentation was appropriate</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>6. Established good rapport by focusing eyes on students and using other devices</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7. Varied the stimuli appropriately to sustain student's attention</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8. Modulated the voice effectively</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>9. Vocabulary used was appropriate and within the comprehension of the students</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>10. Summed up the theme of the lecture effectively</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>11. Provided sufficient time to the students to clarify doubts at the end of the lecture</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

(Developed by Dr. M.S. Bawa for Department of Education, University of Delhi.)

**Source:** School of Education (2003).
Different approaches to content treatment and information processing

Given a content portion a lecturer can treat it in different ways depending upon the teacher's perception of the teaching points. A teacher's perception is guided by factors like his repertoire of experiences or knowledge structure at that point of time, interest in the subject matter, judgement regarding the ability of the students and the amount of time at his disposal.

Some simple ways of content treatments are given below. Reflect on these ways and try to compare one of your lectures with these. Note down the points of similarity and dissimilarity and discuss these with your friends.

i) Serial order presentation

Here the teacher presents the information in a serial order, which is a logical order, with relevant explanations. For example, a Chemistry lecturer in an undergraduate class talks of the occurrence of an element, how it is extracted, its different properties and the uses. Or an English teacher explains a poem line by line, giving the meanings of difficult words, the implied messages, similes, metaphors and the like or a History lecturer, talking about a particular period, giving the dates and events in a serial order and explaining the events.

ii) Reverse order presentation

Here the teacher presents the content in a totally different sequence from the one that is seen in a conventional text book prescribed by the syllabus. For example, a Physics teacher talks about the effect of a particular form of energy deriving it from daily experience and analyses the effect by recalling the effect under varying conditions and leads the analysis to an explanation of the cause or the effect. This is followed by a narration of the discovery of the effect. Yet another example could be an English lecturer talking of various forms of expressing feelings by men of letters and for each form, takes an example from the prose lesson that the students have to learn. A third example could be that of a Geography teacher describing the various effects of climate of a country, thereby trying to derive the parameters that influence climate and then finally disclosing the name of the country and the varying effects of parameters from prior knowledge.

iii) Narration in tune with the nature of the discipline

Three examples are given below. After browsing through, choose the one which is more in link with the discipline that you teach and reflect on the nature of the discipline before you read further.

Example 1: A Physical Science teacher

a) The spirit of inquiry is the essence of the discipline. For teaching a particular topic through a lecture, the teacher describes a physical phenomenon with the aim of explaining it. The data presented by him are in such a fashion that there arises a problem in the explanation of the phenomenon or a paradox in the explanations.

b) He proposes evidence and counter-evidence in resolving the paradox. He proposes various hypotheses, eliminates the ones which do not stand the scrutiny of testing or which cannot be logically tested.

c) He tests the testable ones either logically or by recalling evidences from established texts or prior experiences and arrives at a temporary explanation which might lead to further contradictions.

Example 2: A Language teacher

a) The beauty in the expression of ideas, feelings, etc., through symbols or letters and the evolution of different styles of expression through time become the essence of
the discipline. Here, the lecturer, like a painter on canvas, slowly describes the contemporary literary scenario, including the socio-cultural context of the period in which a particular author lived.

b) Then he slowly relates his work with others, thereby completing the picture of the context of the literary creation under study. Similarly the context of the particular piece under study in the total scenario of his other pieces is described. At every possible point of time the particular piece under study is quoted and the relationship established.

Example 3: A History teacher

a) He has to teach about a particular period of time, the regime, the achievements of the ruler and his contributions. In such a case, the teacher first describes the evidences that are available or those which were available, with a view to tracing back the nature of the regime. More and more evidences to support the nature of the regime are provided at appropriate times.

b) He then tries to trace the effect that the period has, to the next epoch, and also the reasons for the present from the earlier periods.

The above three are only typical examples of content treatment. In actuality, one lecturer may not strictly follow anyone of these treatment styles alone. He might be using a combination of these and also other forms of content treatment. This suggests that there could be other forms of content treatment. The above ones are only the distinct ways. If the first and the third ones are taken as two extremes, one can visualise a variety of ways as content treatment. This discussion becomes more meaningful in the context of a given content portion.

The suggestion that there could be various ways of treating the content would imply that the same information could be processed in different ways. The teacher supplies and processes the information in the classroom, depending on his perception of the group and the subject matter. Also, the teacher could involve the students in information gathering and processing. This would depend on the interest evinced by the students to gather information, and the time at his disposal and the cooperation extended by the students.

To illustrate the above point:

a) A chemistry lecturer assigns the students, by giving specific instructions, to collect information regarding the properties of the first 40 elements from books in the library before a particular session on periodic table.

b) In the class the teacher divides the students into six or seven groups and asks them to draw a graph with the property of elements against the atomic number (each group taking up one property).

c) Then each group leader is asked to present the nature of the graph to the whole group. (This could be done in different ways depending on the availability of resources, e.g. if media hardware like overhead projectors are available, the groups can be asked to report the graph on acetate sheets).

d) Lastly, the teacher sums up the class by showing how all the graphs presented show periodicity or else the relationship between the atomic number and the properties of elements is found to be periodic and thus helps the students predicate the properties of elements beyond the atomic number 40.

Another example to illustrate the above mentioned point is, an English teacher intending to develop the skill or precis writing in his students. In this connection:

a) The teacher assigns different groups in the class to collect newspaper cuttings from specific newspapers on the report of an important international event. Each group is asked to collect five reports each.
b) In the classroom the members of the groups are asked to read the reports and make a summary of the events specifying the length of the report.

c) After they have completed the task, the teacher writes the expected points on the chalkboard and asks the students to verify the answers. The teacher also goes round helping students evaluate their reports.

d) At the end of the class the teacher gives a few tips on scanning, noting down points and on rewriting.

Similarly, you can also think of various ways of treating the content that you teach.

You can also try to gather informal information regarding the liking or disliking of the differential treatments. This would enable you to gain confidence in the various ways of content treatment and to take into consideration the right way of teaching your content. You might change the content treatment the next time when you are teaching a fresh group of students where you find a marked difference in the abilities of individual members of the group.

Above all, the way you would like to treat the content would depend to a great extent, on the list of output specifications that you have set out for your students to achieve. For example, if you want the students to recall definitions, write explanations and give examples, you would naturally adopt the first style presented. But, if you would like your students to reason out a new given situation, using the knowledge that they have, then your style of content treatment would be more or less, like the third style mentioned, i.e., narration in tune with the nature of the discipline.

**Lecture in combination with other methods and media**

In the examples given in the previous section, you might have noticed that during the presentation, different methods and media hardware are used. For example, the English teacher uses group task as a method. He also uses individual task as a method. The Chemistry lecturer uses overhead projector to present the graphs prepared by the students. This is an example of the use of hardware. Similarly, a variety of methods and media can be used in combination with the lecture method.

To understand this better, you might consider your position as a systemist from a wider angle that is to say, the viewpoint merely from a session or period is insufficient to appreciate this fully. Let us look at content treatment from a larger angle, i.e., the treatment on one unit from the prescribed syllabus for which the time allotted is about ten sessions.

i) During the first session you introduce the topic to the students through a lecture, at the end of which, a home assignment is given for the students to collect information regarding the topic from identified sources.

ii) In the next session, a group task is given to the students to process the information collected, which is followed by a discussion.

iii) During the third session, along with one of your colleagues, you teach the students through ‘Team Teaching’. Here, you present two distinct viewpoints on the topic under study.

iv) During the course of the fourth and the fifth sessions, you engage them in the laboratory/field work, verifying the alternative viewpoints put forward.

v) In the sixth session, you divide the students into small groups and ask them to discuss their points of view based on their recent experiences and arrive at their conclusions. The teacher acts here as a moderator.

vi) During the seventh session, you present a problem for the students to solve, based on their experiences. A sample of solutions are analysed to study the merits and demerits of the suggested solutions.
vii) The eighth session is used for independent study in the library and the ninth to give a test on the unit. This is immediately followed by a discussion on the expected responses of the test (the feedback).

This is only an illustration to show the combination of methods used along with a lecture, to form a strategy (you will be learning more about the formation of instructional strategies and its potentials in achieving a wide variety of output specifications in the students, in Unit 4 of this block). Depending on the resources available (both human and material) and your creativity, a million different ways of treating the content can be derived to suit different contexts. Your ability to treat the content in different styles is an indication of the ‘professional’ or the ‘systemist’ in you.

Versatility of lecture

Versatility of a lecture can be seen in various ways. The lecture provides versatility in terms of the subject matter taught, personality characteristics of the teacher, the teacher-student ratio and the financial implications.

Lecturing can be used to impart knowledge regarding a wide variety of subjects to students. Subjects can range from Mathematics to Languages or Fine Arts, from Theology to Cosmology, or from Trigonometry to Investigative Journalism.

Lecturing is a method that can easily adapt itself to suit a wide range of personality characteristics. A person with oratory skills finds it a high potential alternative with which to convey most of his ideas. A man of a few words, or one who talks in a matter of fact may also find in it, a versatile way of presenting processed information to his students. Given a new setting and a new topic, most teachers resort to this alternative.

This alternative is adaptable to a wide range of teacher student ratio, e.g., in cases where there are only 5 to 6 students in a particular group, the lecturer uses this alternative to give an overview of the topic that they are going to learn in the next few days. Yet another example could be that of a first year undergraduate class in any subject, where there could be a student strength of 300 or more. In such a situation too, this input alternative comes to your rescue.

In addition to all these, the lecture technique is very economical and can be made very effective with proper planning and execution. If judiciously augmented with other input alternatives, the effects it can have on the teaching-learning process, is remarkable in terms of the wide range of outputs that can be achieved (both short-term and long-term).

The above point shows that there can be lectures, and lectures on the same subject or even the same topic. In other words, if four different lecturers are to give lectures to four similar groups on the same topic, it could evoke varying outputs among these four groups of students. This reveals the versatility of this input alternative.

What we have seen in this unit so far is the versatility of the input alternative - 'lecture', and the various ways of treating the content while delivering the lecture. By far, this input alternative is dominated by the teacher activity and to that extent, the involvement of the students in the learning process is not ensured. This is pointed out as the major lacunae of this input alternative. Also because of the lack of involvement of the students in the learning process, the degree of attainment of output specifications is also under question.

Disadvantages

However, the lecture also

- places students in a passive rather than an active role. Passivity can hinder learning and students’ attention may be lost.
- encourages one-way communication; therefore, the lecturer must make a conscious effort to become aware of student problems and student understanding of content.
Instruction in a Systemic Perspective

- requires a considerable amount of unguided student time outside the classroom to achieve understanding and long-term retention of content. In contrast, interactive methods (discussion, problem-solving sessions) allow the instructor to influence students when they are actively working with the material.

- requires the instructor to have or to learn effective writing, speaking and modelling skills.

- places the responsibility of organizing and synthesizing content upon the lecturer.

In order to make a lecture really effective, a teacher has to learn many skills. These will be discussed in Unit 7.

Self-assessment

3. Given below are some situations wherein the teacher has followed one of the three styles, i.e., serial order presentation, reverse order presentation and narration in tune with the nature of the discipline. Mention the style involved for each of the following situation

a) A Biology teacher raises a problem from certain data, asks the students to hypothesise, collect information and verify them.

b) A Sociology teacher explains the concept of the family, types of families, functions of a family, etc.

c) A Sanskrit teacher cites the great works at Adisankaracharya, and compares his works with those of other contemporary authors, and describes the socio-cultural milieu that prevailed at that time.

d) A Geography teacher starts with the variation in the temperature of a place and the cause of it and then comes to the concept of weather and how weather of a particular region can contribute to the climate of that region.

Demonstration

Another teacher-controlled instructional technique widely used in higher education institutions is Demonstration. As college teachers, you may well be acquainted with the word 'Demonstration'. In colleges, especially, Science teachers use demonstration very often, though teachers of other disciplines take recourse to demonstration when something related to teaching of skills comes. A Science teacher demonstrates the Newtonian laws, a Music teacher demonstrates a classical Hindustani music, an Art teacher demonstrates how to sketch and so on. What then is demonstration? Webster Dictionary defines it as "a public showing emphasizing the salient merits, utility, efficiency, etc., of an article or product". While used in teaching, demonstration means showing how something is to be done or not to be done. It involves the art of depicting the skills associated with an action. Sometimes, ideas, attitudes, processes and other intangibles are also demonstrated consciously. Let us now discuss in detail the various aspects of demonstration.

Major characteristics of demonstration

i) Both concrete and abstract matter can be effectively demonstrated. Generally, we demonstrate concrete matter or processes connected with them. But abstract matters like discussing the theme of a play or novel, the organisation of state or federal governments, can also be demonstrated.

ii) Demonstration is thought to be the best method for displaying skills in operation. Driving of an automobile, playing the sitar/guitar, dissection of a frog, etc., can easily be demonstrated.
iii) Apart from the demonstrator and the audience, demonstration is facilitated by audio-visual materials like the chalkboard, a filmstrip, a film, a recording, a diagram, a chart, etc. Now-a-days, even critical surgery like heart operation is demonstrated on television.

**Principles of demonstration in teaching**

The principles of demonstration are the following:

i) Establishing rapport: The demonstrator should always maintain a friendly relationship with students. He should be simple and a warm human being as far as possible. He should stimulate interest and arouse curiosity amongst the students.

ii) Avoiding the COIK Fallacy: The demonstrator must be able to put himself in the role of the observer. Hence, he requires thoughtful and vigilant effort. If he does not make this effort, the demonstrator is likely to commit the COIK Fallacy which stands for “Clear Only If Known”. In this case, the demonstrator knows his subject well whereas the students who are observers may be ignorant of that.

iii) Watching for key points: The demonstrator must ensure that the key points in the demonstration are being communicated to the students. Hence, he should lay special emphasis on them, repeat them and highlight them.

In a demonstration, there are mainly three important steps/considerations. These are preparation, performance and evaluation. Let us discuss these steps.

**Preparing a classroom demonstration**

While making preparation for a classroom demonstration, the demonstrator has to take note of the following points:

i) To plan a demonstration that will create interest among the students:
   The demonstrator should prepare himself in such a way that his performance will create interest among the students as well as make them active and responsive.

ii) Plan every step (including materials) carefully:
   The demonstrator should ensure that the requirements of every step in the task of demonstration are ready and kept in order. He has to make every piece of equipment ready beforehand. It is undesirable to interrupt and go for some equipment once the demonstration is already on.

iii) Rehearse your demonstration:
   After the procedure has been organised, the demonstrator should rehearse the demonstration in order to test it for clarity, interest, duration and other elements, with a good critic.

iv) Outline the steps on the chalkboard:
   In order to make the demonstration understandable, the demonstrator should outline the steps on the chalkboard before the class begins. The teacher may remove the steps one by one when a particular step is completed.

v) Make sure that everyone can see and hear:
   The teacher should take note of the fact that everyone present during the demonstration can see and hear the teacher. Hence, he should ensure that proper light and seat arrangement exist in the classroom. He must be audible to all the students present.

vi) Prepare written materials:
   It is known that learning through hearing and seeing is reinforced by written materials. The demonstrator, therefore, should prepare hand-outs which may be provided to the students at the end of the demonstration. He has to keep in mind...
that written materials should not be handed out at the beginning or in the middle of the demonstration because these may disturb the students.

**Performing the classroom demonstration**

When the preparation for the demonstration is over, the demonstrator starts the demonstration. The key points here are:

i) **Setting the tone for good communication**
   The demonstrator should arouse curiosity, and generate interest among the students and hold their attention as he goes through the stages of demonstration. He should not show his wit or profundity because these may confuse the students. He may allow the students to put questions at this stage, about the purpose of the demonstration.

ii) **Keeping the demonstration simple**
    The demonstrator should try to keep the demonstration simple. He should take care of the less capable students and stress much on the main points of the demonstration. He should not try to overload the students with many ideas which he knows.

iii) **Not digressing from the main idea**
     Sometimes it may so happen that the teacher may digress from the main point and launch into a detailed discussion on something else, which is not the main focus of the demonstration and which can hence be postponed till a later stage. If you do not follow this principle, you will probably frustrate many of your students and in the process, waste a lot of time. Hence the demonstrator should not go out of track during the demonstration.

iv) **Checking continually that your demonstration is being understood**
    The demonstrator should always watch his audience and detect signs of bewilderment, boredom or disagreement. He should not have the impression that everything is clear just because no student looks puzzled or asks a question.
    Hence, he should put questions to the students in order to make sure that his ideas are getting across the students.

v) **Not hurrying your demonstration**
   Sometimes, the demonstrator proceeds somewhat fast while demonstrating. He should keep in his mind that his students are seeing the demonstration for the first time. He may stop the demonstration for a while and ask questions to the students.

vi) **Not dragging out the demonstration**
    Everything in a demonstration class should be kept in its proper place. Sometimes, the demonstrator forgets this and walks around the table to grasp something that by should have been placed within his reach. This shows his unskillful presentation which mars the students' interest.

vii) **Facilitating observation by students**
    It may be remembered that the demonstration is for the students to observe keenly. Hence, the object or process being demonstrated should be clearly visible to the students. And, the significant parts/aspects in the demonstration should be observed and described by the students, rather than merely the teacher giving all descriptions. This would encourage the students to pay more attention to the demonstration and observe things on their own.

viii) **Summarizing as the demonstration goes on**
    A good demonstrator keeps on summarizing as the demonstration progresses. He uses chalkboard, charts, diagrams or some other devices for the summarizing purpose in a lengthy demonstration.
ix) Distributing handouts in the end

At the end of the demonstration, the demonstrator distributes handouts, which serve as the summary of the demonstration. These materials must include a step-by-step outline of what the students have just witnessed, followed by the general conclusions and the key points. It may include questions for immediate discussion or for use at the next class meeting.

Advantages and disadvantages of demonstration

Advantages

1. Difficult concepts become clear to most of the students.
2. It provides an interesting forum for the teacher and students to interact.
3. Students can see as to how things happen, they manipulate objects, record their observations, cross-check with each other and evaluate themselves.
4. Students can develop the skills required to perform the given task.
5. Social development, sympathy and empathy can be developed among the students.

Disadvantages

1. It is not effective in a big size class.
2. It takes a lot of time for the teacher to plan for it.
3. It requires teachers’ competency and skills to handle the equipments and do it step by step.
4. Some of the demonstrations require proper natural environment etc. that it is impossible for the teachers to have the demonstration.
5. Same thing does not happen twice.

Criteria for assessing demonstration

In the above sections the common defects and measures to improve demonstrations have been discussed. A critical examination of these defects provides the criteria for assessing demonstration. Two major criteria for assessing demonstration are:

- Effective presentation; and
- Efficient presentation

Please refer to the Scale for Assessing Demonstration (SAD) given in the box for assessing the effective presentation the items appearing at serial numbers 3, 4, 5, 8, 9, 10, 11, 13, 14, 15 and 16 have been included in the Scale for Assessing Demonstration (SAD). For items appearing at serial numbers 1, 2, 6, 7 and 12 in SAD deal with assessment of efficient presentation.

Scale for Assessing Demonstration (SAD)

1. Name of the teacher:
2. Title of the Lecture:
3. Date:
4. Assessed by:

Instructions

Encircle the number which most closely indicates your assessment of the teacher's performance on each of the following components/items:
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description of components</th>
<th>Extremely weak</th>
<th>Very Weak</th>
<th>Weak</th>
<th>Average</th>
<th>Good</th>
<th>Very Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The equipment, materials, etc., to be used in demonstration were orderly placed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2.</td>
<td>Seating arrangement made possible for all the students to see demonstration and hear the teacher clearly.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>Demonstration was well-planned.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4.</td>
<td>Objectives of demonstration were clarified before giving demonstration</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>5.</td>
<td>Critical points, where special attention was required, were explained to the students prior to demonstration.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>6.</td>
<td>Various operations were performed efficiently, without fumbling and confusion.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>7.</td>
<td>Various operations involved in demonstration were carried out in an orderly sequence.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>8.</td>
<td>Students’ attention was focused on important features/aspects of demonstration through suitable devices.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>9.</td>
<td>Active participation of the students was sought in terms of setting up equipment, observation of phenomenon, explaining causes, drawing inferences etc., during demonstration</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>10.</td>
<td>Media (live, audio-tapes, slides, films etc.) used during demonstration were appropriate.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>11.</td>
<td>Strategy used for demonstration was appropriate.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>12.</td>
<td>Short time intervals during the process of demonstration were used for providing useful information</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>13.</td>
<td>At the end of the demonstration, main features of the demonstration were highlighted.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>14.</td>
<td>Attainments of the students were evaluated through questions</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>15.</td>
<td>Demonstration was well executed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

(Development by Dr. M.S. Bawa for Department of Education, University of Delhi.)
Source: School of Education (2003)
Team teaching

Like lecture and demonstration, team teaching also provides teacher-controlled instructional experiences to the students. This is an instructional technique used by many teachers to improve teaching-learning process in the classroom. It is an innovation in teaching in which two or more teachers plan, execute and evaluate the learning experiences of a group of students. Warwick (1971) defines it as, “A form of organisation in which individual teachers decide to pool resources, interests and expertise in order to devise and implement a scheme of work suitable to the needs of their students and the facilities of the institution”. To be brief, team teaching involves a group of persons, or a team, instead of an individual, in the instructional process. A team is not just a collection of individuals, but, a unit in itself making effort to improve instruction through the reorganisation of personnel in teaching. In other words, two or more teachers are given responsibilities, to work together for the instruction of a particular group of students attempting a particular course.

Team teaching is a type of instructional organisation involving teaching personnel (includes other academic also, such laboratory incharge, librarian, sport teacher, media person, etc.) and the students in which two or more teachers share the responsibility of providing instruction to students. Thus team teaching combines three elements: (i) a distinct student group (ii) a small faculty group responsible for teaching the student group, and (iii) certain persons who assist the teachers and the students.

Origin and growth of team teaching

Though the origin of team teaching cannot be exactly traced back to any particular point of time, the major development in team teaching occurred during the late 1950s American education. Since then, many researches and attempts have been made to spread team teaching as a technique of teaching. In 1955, Harvard University initiated an internship plan in which five apprentices served simultaneously under an experienced teacher for multiple relationships with adults.

Objectives of team teaching

The team teaching has the following objectives:

- to identify better talents and utilise them for the teaching of a certain course;
- to improve the quality of instruction; two heads are better than one because many rains are better than one.

Characteristics of team teaching

The following are the main characteristics of team teaching:

- It is a flexible instructional organisation. It provides for variety in instructional procedures, assignments, scheduling, grouping, etc.
- It binds the teachers, students and other academic personnel in a working relationship with a view to enhancing effectiveness of teaching.
- A group of teachers shares the responsibility of planning, organising, leading, controlling and evaluating teaching of the same group of students.
- Even though team teaching is group-oriented, it protects the professional autonomy
of the individual teachers in classroom. You are free to use strategy(ies) of teaching on the basis of your judgement. This, however, doesn’t prevent you from consulting others and seeking their advice. In other words, team teaching protects the sovereignty of a teacher in classroom.

**Styles of team teaching**

There are mainly four styles of team teaching. They are:

1. **Team teaching in the same class period**
   
   In this style, the team members discuss the various aspects of the same topic in the same class period. This may bring about the interrelatedness of knowledge through discussions by different teachers from different subjects. The disadvantage with this style is that it may not be workable in institutions where only one teacher is available for each discipline.

2. **Specialisation based team teaching**
   
   In this style, team members with different subject specialisations are responsible for all activities of instruction starting from course formulation to evaluation. The course units can be shared by members of the team, depending upon their interests and abilities. The basic motive behind this technique is to make the best utilisation of the available human resources, in terms of subject specialisation.

3. **Ability based team teaching**
   
   Here also, a team is responsible for all the instructional activities. The sharing of units is not done according to subject specialisation, but according to abilities involved in teaching activities. With reference to different instructional inputs, there are different abilities and skills involved in activities like lecturing, conducting seminars, guiding discussions, giving demonstrations, etc., which are required on the part of the teachers. According to the abilities of each member of the team, one may do all the lecturing, and the other conduct discussions, etc. Hence, in this style, the different abilities can be maximally utilized.

4. **Relay style of team teaching**
   
   In this approach, a teacher is followed by another teacher after he completes teaching of a unit. In this process, two or three teachers are involved in the teaching of a particular course. Here, the division of work is neither according to subject specialisation nor according to the abilities of the members of the team. This approach may not at first glance, appear to have much instructional value, but the worth of it lies in the fact that it can be easily adopted as a beginning, in institutions where team reaching is not in practice.

You have seen four styles of team teaching discussed in this section. It may be remembered that in all these styles the planning and evaluation aspects are also performed together by the team members.

**Instructional values of team teaching**

The instructional values of team teaching are the following:

1. The planning, teaching and evaluative procedures adopted in the instructional process carried out by a team of teachers, are generally superior to those done by a single teacher. Here, the basic assumption is that a group of experts whose minds are focussed on the same problem, will usually arrive at solutions superior to those offered independently by individuals.
ii) Each member gets the opportunity to observe how others teach, to be observed by other teachers, and sometimes shares the teaching of a class with another teacher. This is expected to result in a quality of teaching which is superior to that found in individual teacher classrooms. It is evident that when the member teachers of a team become intimately involved, their self-evaluation and mutual constructive criticism affect the decisions they make as a team regarding planning, teaching and evaluation. This self-evaluation and mutual constructive criticism would facilitate continuous appraisal of one's own teaching procedures, which in turn, would improve the instructional process.

iii) As mentioned earlier, when two teachers teach as a team in the same period, adopting a well structured argumentative approach, the students tend to achieve higher cognitive abilities and get motivated to express their own ideas or opinions regarding the topic under discussion. This may be very difficult to achieve if only a single teacher is involved.

iv) Any instructional system would aim at developing certain affective qualities like tolerance, co-operation, democratic outlook, etc., in the students. The functioning of a team is a live demonstration of how these affective attributes are inculcated by the individual members of the team. The students would see for themselves how these attributes help in the successful functioning of a team. This would facilitate the development of these attributes in the students.

v) Since a team is involved in the evaluative procedures of group of students, the whole evaluation becomes more objective and scientific.

vi) Team teaching involves thorough analysis of the whole instructional process by a group of teachers. This analytical approach by the team makes the instructional system scientific and technological, and improves the functioning of the system.

Self-assessment

5. Team teaching means:
   a) Two teachers must be involved in the teaching activity.
   b) One teacher after the other will carry out the teaching activity.
   c) More than one teacher would be involved in planning the procedure of teaching and may participate in the actual teaching activity.

6. Given below are some instances of team teaching. Name the style of teaching to which each of them belongs: (See the four styles of team teaching described)
   a) In a team teaching session in History, where two teachers X and Y are involved, Mr. X prefers to conduct panel discussion, whereas Mr. Y does question-answer activity.
   b) Three teachers in Geography planned the entire procedure for teaching, but carried out teaching one after the other.
   c) In a team teaching in Economics, Ms. A is always given the responsibility of teaching Money Banking.
   d) Four teachers in Physics always prefer to discuss the various aspects of light in the same period.
Summary

We began this Unit with a discussion of the concept of lecture wherein, the lecture is perceived as both one way and two way communication. Moreover, a lecture is also recognised as an integrator of various sources of information. Lecture, like any other instructional techniques, is structured. It has planning, introduction, development and consolidation phases. Thereafter, our discussion shifted to different approaches to content treatment and information processing wherein we provided you with three major styles of content treatment i.e. 1) Serial order presentation 2) Reverse order presentation and 3) Narration in tune with the nature of discipline. The greatest advantage of lecture method is that it can be combined with other methods and media. Thus, the versatility of lecture becomes evident. We then discussed the modes and advantages of demonstrations and team teaching. In demonstration the teacher plans, all the minute steps logically and scientifically. He shall ensure that all the needed materials and equipments are procured and kept ready in the classroom. It helps the teacher to develop certain skills in the students. Team teaching is essential to make the teaching more fruitful by utilising the available expertise in the institution and locality. It requires joint planning and execution by a group of teachers/experts. In these, as well as the lecture, planning of the lesson is very important. Such a planning involves preparation of materials as well as a discussion of these with colleagues.

Unit-end activities

1. Identify the similarities and differences in the three styles of content treatment. Discuss the various possibilities of content treatment with at least two others who are teaching the same subject.

2. Choose a content from your discipline. Treat the same content according to the style best suited for the content. The styles are:
   a) Serial order presentation
   b) Reverse order presentation
   c) Narration in tune with the nature of the discipline
   d) Lecture in combination with other methods and media.

3. Suppose, one of your colleagues is giving a demonstration in his class, observe the demonstration and assess whether he/she has fulfilled the requirements of the demonstration.

Points for discussions

1. Under what conditions does a lecturer fail to communicate with his audience?

2. What are the precautions one should take to maintain a friendly team spirit among teachers?

3. Other than the usual science laboratory set up, what other learning situations can lend themselves to the demonstration technique for illustrating a major concept?

Suggested readings


**Answers to self-assessment**

1. (a) ×  (b) × (c) ✓  (d) ×  (e) ✓  (f) ×

2. (a) Warm-up (b) Teacher-controlled (c) confidence (d) development

3. a) Narration in tune with discipline
   
   b) Serial order presentation
   
   c) Narration in tune with discipline
   
   d) Reverse order presentation

4. The demonstration technique is a very effective instructional technique which supplements to the explanation given by the teacher, regarding various concepts and principles. It provides concrete learning experiences to the students, thereby strengthening the existing learning experiences.

5. c)

6. a) Ability based team teaching
   
   b) Relay style of team teaching
   
   c) Specialisation based team teaching
   
   d) Team teaching in the same period