UNIT 11 INSTRUCTIONAL STRATEGIES

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11.1 INTRODUCTION

In the previous unit on instructional planning you have studied the concept, need and importance of instructional planning along with the issues related to and steps involved in it.

The present unit aims at clarifying the concept strategy in general and then explains it in an instructional/teaching-learning context. There are two common questions any teacher has to solve. These are:

- Towards what purpose do I teach?
- How do I teach?

Let us now try to elaborate what the first question signifies?

- What are my expected learning objectives/instructional outcomes?
- What are the contents, syllabi and teaching points? Similarly the word how will imply?
- Which method(s) will you use/adopt?
- Which media/or their combinations will you use?

Besides the mode of delivering your message(s) by using a suitable combination of available and feasible method(s) and media, the other important messages the word - How - signifies are:

- the effectiveness of one’s instructional delivery to the learners i.e. feedback. Therefore it also includes, How do I evaluate? i.e. How do I find out that the students have learnt?

To answer these questions systematically, one needs to design strategies in instructional process. In this Unit, we shall study the steps involved in designing an appropriate instructional strategy.

This unit has been reproduced from Course ES 302 (Block 1/Unit 4) of the Post Graduate Diploma in Higher Education (PGDHE) Programme of IGNOU with some modifications.
11.2 OBJECTIVES

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

- define ‘instructional strategy’,
- formulate instructional objectives for a given syllabus,
- select appropriate and available method(s) and media to achieve specific objectives,
- list the parameters of evolving an instructional strategy,
- identify the role of evaluation for instructional purposes, and
- evolve instructional strategy for your teaching.

11.3 WHAT IS AN INSTRUCTIONAL STRATEGY?

We are familiar with the word strategy, as it is commonly used in military operations. Its simple meaning is a plan/method for obtaining a specific goal or result.

If we use a strategy in our teaching-learning/instructional situations it is known as instructional strategy. Try to write down the major components in an instructional strategy.

1.
2.
3.
4.

In Unit 5 Block 2 of this Course, you have gone through the major components of an instructional system. Figure 11.1 below presents a graphical representation of an instructional system.

![Fig. 11.1: Instructional System — Components](image)

There are three main components of an instructional system. The third component output is also known as:

- Learning outcomes
- Instructional outcomes
- Terminal behaviours
- Goals of education
- Behavioural objectives

(Would you like to add some more to these. Please do so.)

Similarly the second component “process” is also known as:

- Learning experiences
- Instructional events
Teaching-learning process
- Arranging learning conditions
- Teaching

Persons with different background and different scientific framework use different terms to emphasize certain aspects of the process - that which is designed explicitly or implicitly, systematically, or in an ad hoc manner - to help the learner:
- achieve the goal(s)
- arrive at the terminal behaviours, etc.

The above illustration of an instructional system and its components have helped us in understanding the concept instructional strategy. Thus the definition would be: Instructional strategy is that "Process" which is designed explicitly, and systematically to ensure that the learners acquire the terminal behaviours and achieve the expected instructional objectives.

One cannot learn swimming by only reading books on it or watching a film on swimming. To learn swimming, one has to enter the water (deep enough, but not so deep as to drown) and try to swim. Similarly, to learn how to design a strategy, you must design one yourself. To help you design such a strategy, an exercise has been planned. Select one unit from the subject(s) you teach. Please go through each step involved in an instructional system, follow them sequentially and systematically. You can take your own time. It cannot be completed at one sitting. The first attempt could be to just read through the whole unit and then come back to the beginning and start again till you complete it.

Check Your Progress 1
Notes: a) Write your answer in the space given below.
   b) Compare your answer with the one given at the end of the unit.

Explain, in brief, in what way(s) instructional strategy is helpful to a teacher in his/her teaching.

......................................................................................................................................................................
......................................................................................................................................................................
......................................................................................................................................................................
......................................................................................................................................................................

11.4 EVOLVING INSTRUCTIONAL STRATEGY

Designing an instructional strategy is a process which requires a number of steps. The steps involved in evolving it are presented graphically in Figure 11.2 and are discussed below.

![Fig. 11.2: Evolving Aspects of Instructional Strategy(ies)](image-url)
11.4.1 What Am I to Teach?

This is synonymous with the prescribed syllabus generally. The content or topics are given in the syllabus. Usually, a textbook or any other recommended reading gives some details — the sub-topics, the rules, the procedures regarding that topic, etc. In addition to such content, the textbook implicitly also indicates a certain level of treatment. The general goals of education which are current and sometimes articulated through terms like thinking, analytical reasoning, open mindedness, scientific attitude, etc., also indicate the level at which one should treat that subject. But on most occasions there is a lot of confusion about the specific cognitive abilities or effective attributes that, one should aim at teaching a particular topic out of the syllabus.

So your first task is to be clear about the instructional objectives regarding both these aspects, namely content and ability dimensions.

Brainstorming regarding abilities as part of the instructional objectives:

Activity 1

Write down against each of the clauses A,B,C given below 10 different words, as part of sentences which come to your mind.

A) Thinking, to me means ..........................................................
   e.g. i) inferring
         ii) generalizing
             (Add more)

B) Feeling, to me means ..................................................
   e.g. i) sharing
        ii) sympathising
            (Add to this list)

C) The skills (psychomotor) essential to human beings to live in a modern world are ..............................................
   e.g. i) cycling
        ii) preparing a chart
            (Add more)

11.4.2 Describing the Ability Dimension of Educational Goals

After completing your list, check with your colleagues so as to gather what they understand by these concepts. If you like their ideas, add those to your list. This becomes your draft of operational definitions of the desired goals/output of the educational system. Of course, these aspects of thinking, feeling and skills are to be manifested through some subject content, theory, e.g. geography, history, languages, sciences, commerce, etc. If you like, you may compare your lists given in Tables 11.1 and 11.2 You may also decide to take some ideas from there. These lists are derived from conceptual framework of B.S. Bloom (1956). It is not essential that you adopt this framework only. Just as he and many other scholars differ amongst themselves, you too can differ from them. Your list should be useful for your work - for your description of educational goals

You may revise your lists as you become more experienced over the years.

<table>
<thead>
<tr>
<th>Table 11.1: Major Categories in the Cognitive Domain of the Taxonomy of Educational Objectives (Bloom, 1956)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptions of the Major Categories in the Cognitive Domain</td>
</tr>
<tr>
<td>i) Knowledge: Knowledge is defined as the remembering of previously learned material. This may involve the recall of a wide range of material, from specific facts</td>
</tr>
</tbody>
</table>
to complete theories, but all that is required is the bringing to mind of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain.

ii) **Comprehension**: Comprehension is defined as the ability to grasp the meaning of material. This may be shown by translating material from one form to another (words or numbers), by interpreting material (explaining or summarizing), and by estimating future trends (predicting consequences or effects). These learning outcomes go one step beyond the simple remembering of material, and represent the lowest level of understanding.

iii) **Application**: Application refers to the ability to use learned material in new and concrete situations. This may include the application of such things as rules, methods, concepts, principles, laws, and theories. Learning outcomes in this area require a higher level of understanding than those under comprehension.

iv) **Analysis**: Analysis refers to the ability to break down material into its component parts so that its organizational structure may be understood. This may include the identification of the parts, analysis of the relationships between parts, and recognition of the organizational principles involved. Learning outcomes here represent a higher intellectual level than comprehension and application because they require an understanding of both the content and the structural form of the material.

v) **Synthesis**: Synthesis refers to the ability to put parts together to form a new whole. This may involve the production of a unique communication (theme or speech), a plan of operations (research proposal), or a set of abstract relations (scheme for classifying information). Learning outcomes in this area stress creative behaviours, with major emphasis on the formulation of new patterns or structures.

vi) **Evaluation**: Evaluation is concerned with the ability to judge the value of material (statement, novel, poem, research report) for a given purpose. The judgements are to be based on definite criteria. These may be internal criteria (organization) or external criteria (relevance to the purpose) and the student may determine the criteria or be given them. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all of the other categories, plus value judgements based on clearly defined criteria.


### Table 11.2: Examples of General Instructional Objectives and Clarifying Verbs for the Cognitive Domain of the Taxonomy

<table>
<thead>
<tr>
<th>Illustrative General Instructional Objectives</th>
<th>Illustrative Verbs for Stating Specific Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows common terms</td>
<td>defines, describes, identifies</td>
</tr>
<tr>
<td>Knows specific facts</td>
<td>labels, lists, matches, names,</td>
</tr>
<tr>
<td>Knows methods and procedures</td>
<td>outlines, reproduces, selects,</td>
</tr>
<tr>
<td>Knows basic concepts</td>
<td>states</td>
</tr>
<tr>
<td>Knows principles</td>
<td></td>
</tr>
<tr>
<td>Understands facts and principles</td>
<td>Converts, defends, distinguishes, estimates, explains,</td>
</tr>
<tr>
<td>Interprets verbal material</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Instructional Strategies</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Interprets charts and graphs</td>
<td>extends, generalizes, gives examples, inferences, paraphrases, predictions, rewrites, summarizes</td>
</tr>
<tr>
<td>Translates verbal material to mathematical formulae</td>
<td></td>
</tr>
<tr>
<td>Estimates consequences implied in data</td>
<td></td>
</tr>
<tr>
<td>Justifies methods and procedures</td>
<td></td>
</tr>
<tr>
<td>Applies principles to new situations</td>
<td>Changes, computes, demonstrates, discovers, manipulates, modifies, operates, predicts, prepares, produces, relates, shows, solves, uses</td>
</tr>
<tr>
<td>Applies theories to practical situations</td>
<td></td>
</tr>
<tr>
<td>Solves mathematical problems</td>
<td></td>
</tr>
<tr>
<td>Constructs charts and graphs</td>
<td></td>
</tr>
<tr>
<td>Demonstrates correct usage of a procedure</td>
<td></td>
</tr>
<tr>
<td>Recognizes unstated assumptions</td>
<td></td>
</tr>
<tr>
<td>Recognizes logical fallacies in reasoning</td>
<td></td>
</tr>
<tr>
<td>Distinguishes between facts and inferences</td>
<td></td>
</tr>
<tr>
<td>Evaluates the relevance of data</td>
<td></td>
</tr>
<tr>
<td>Analyzes the organizational structure of a work (art, music, writing)</td>
<td></td>
</tr>
<tr>
<td>Writes a well-organized theme</td>
<td></td>
</tr>
<tr>
<td>Gives a well-organized speech</td>
<td></td>
</tr>
<tr>
<td>Writes a creative short story (or poem)</td>
<td></td>
</tr>
<tr>
<td>Proposes a plan for an experiment</td>
<td></td>
</tr>
<tr>
<td>Integrates learning from different areas into a plan for solving a problem</td>
<td></td>
</tr>
<tr>
<td>Formulates a new scheme for classifying objects (or events or ideas)</td>
<td></td>
</tr>
<tr>
<td>Judges the consistency of written material</td>
<td>Appraises, compares, concludes, contrasts, criticizes, describes, discriminates, explains, justifies, interprets, relates, summarizes, supports</td>
</tr>
<tr>
<td>Judges the adequacy with which conclusions are supported by data</td>
<td></td>
</tr>
<tr>
<td>Judges the value of a work (art, music, writing) by use of external standards</td>
<td></td>
</tr>
</tbody>
</table>

11.4.3 Preparing a Table of Specifications

Describe your curricular goal/output with respect to a particular student population (your target group, say class IX).

Describe any unit or topic in any one of your teaching subject which you want to teach to that student population, and then prepare a matrix as presented below:

Title of the unit/topic: ..............................................................................................................
Student group: .....................................................................................................................

(Describe the characteristics of the learners group you are teaching these days e.g. IX, X, XI, XII.)

Table 11.3: Description of the Educational Goals: A Table of Specifications

<table>
<thead>
<tr>
<th>Content</th>
<th>Ability</th>
<th>Dimension Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>Thinking</td>
<td>Feeling</td>
</tr>
<tr>
<td></td>
<td></td>
<td>psychomotor</td>
</tr>
</tbody>
</table>

Prepare matrices for some more topics, and then compare them. You would notice/observe that:

i) Different topics would enable you to aim at different concepts, rules, etc., but they also help you involve the students in different thinking/feeling processes and skills.

ii) Topics selected from different subjects may help you involve your students in similar ability dimension of educational goals, like:

- to form a hypothesis,
- to identify the gaps in evidence before accepting a conclusion, etc.

11.4.4 Prioritization

It is possible to reach or help students attain many different content dimension goals and ability dimension goals through the vehicle of different topics/syllabus. A teacher has to select/priorities among these possible goals, because of the time constraints or nature of the topic or some other considerations.

Go back to your matrix and put an asterisk (any sign) in the cells which you consider very important for the student groups whom you teach, within the time you are planning to devote to that topic.

Check Your Progress 2

Notes: a) Write your answer in the space given below.
        b) Compare your answer with the one given at the end of the unit

List two benefits of developing a table of specifications for designing an instructional strategy.

i) ...........................................................................................................................................
...........................................................................................................................................

ii) ...........................................................................................................................................
...........................................................................................................................................
11.4.5 Specifying the Objectives in Behavioural Terms

You have already studied in the earlier units that the goal of teaching is to produce learning, that is, some change in the behaviour of the learner. You also know the importance of evaluation in an instructional system. The evaluation during, or at the end of, a period/lesson is required to see whether the students have learnt or in other words whether the teaching process has been designed and implemented effectively.

For this purpose, our objectives shall have to be specific, i.e. not vague or ambiguous in terms of learners’ behaviour which is observable and hence, measurable.

Some statements are given below. Compare them and decide which of these have specific objectives described in terms of learner’s behaviour.

i) The students will understand principles of electricity.

ii) The student will be able to describe the role of Shivaji in building the Maratha empire.

iii) The teacher will explain the concept of latitude and longitude by using a map.

iv) The student will be able to select an appropriate instrument for measuring moisture in the air.

What is your answer?

Statement (iii) is obviously not a statement of learning outcome and in that sense it is not an instructional objective. It merely describes an activity which a teacher will be engaged in. It describes the teaching method but not the instructional objective.

Statement (i) refers to a learner’s behaviour, but what does the word “understand” mean here? A primary school child understands what electricity is in the sense that he can push a certain button to get light in the room. An older boy may understand it in terms of the shock that he might have received. A +2 stage science student may understand it in an entirely different dimension, may describe it as the process by which it can be generated. While an engineering student can set up an experiment to demonstrate how electricity can be generated. Thus the word “understand” is vague, since it does not indicate the level of understanding. Hence this objective needs to be narrowed down and made more specific by relating it with the activities which a student can display, so that his learning can be observable and measurable.

The terms know, understand, think, comprehend are all words in this category, which do not indicate any specific action that can be observed. Hence there is the need to express these mental processes through some action verbs which indicate the exact desired change in behaviour.

Examples

i) Describes/writes/defines/states the principle in his own words.

ii) Identifies examples (out of those given) of the principle.

iii) Provides (new) examples/illustrations of the principle.

iv) Infers/derives tenable hypotheses based on the principle.

v) Distinguishes between two examples (positive and negative) or between two hypotheses or between principles by pointing out specific criteria.

vi) Explains the relationship between two or more given principles.

Add a few more such statements which you think can be implied by the term “understand”.
Let us take another example:
The statement, "He will be able to think critically", could be transformed to: He will be able to:

i) distinguish between facts and opinions.
ii) distinguish between relevant and irrelevant information.
iii) identify fallacious reasoning in a given argument/statement.
iv) identify/detect/point out the limitations or inadequacies of given data.
v) formulate/infer valid conclusions from given data.
vi) identify assumptions/underlying conclusion/behind an argument.

Of course all the above kinds of objectives are to be stated in the context of the specific topic/content that you have selected to teach.

How specific should an instructional objective be?

It should be relevant to know the extent to which an educational objective be made specific. You can examine the extent of specification of educational objectivities in two ways. The first is that it should enable you to write/formulate questions for assessing whether that particular objective has been reached. This means that it should also indicate the level and the conditions under which the behaviour is to be displayed. Secondly, the sufficiency of the specificity can be tested when another expert teacher of that subject is able to formulate examination questions of the same level of difficulty and complexity which you aim at in teaching that topic.

In other words, the instructional objective should be specific enough for two experts to derive the same meaning from it and decide its desirability or otherwise, and its measurability.

Now, go back to your table of specifications and write five instructional objectives which are observable and hence measurable.

Before specifying the objectives determine your target group, i.e., the students whom you expect to achieve these objectives, and the approximate duration.

Difference between instructional objectives, goals of education, terminal behaviours and learning outcomes: We have already discussed the meaning of instructional objectives, their usefulness and limitations, etc., in Unit 6, Block 2 of this Course. Here, we are differentiating between instructional objectives, goals of education, terminal behaviours and learning outcomes.

So far we have used these words rather loosely and hence interchangeably. But, then is there really any difference amongst them? Yes, and henceforth we should try to use them with their specific meanings. (See Figure 11.3 - Output of a system of education.)

The term goals of education refers to the long-term goals. They are, sort of general or universal, e.g. to develop citizenship, to develop critical thinking, etc. The time duration in which these are to be attained is not strictly specified. As against this, instructional objectives are objectives which a teacher (designer) has placed before herself/himself to be achieved during a specified instructional period. The instructional objectives should not be vague in that they are stated in observable and hence measurable terms, e.g. on the topic of citizenship to be taught to Class X students, the instructional objective could be:

"They will be able to describe the rights of a citizen guaranteed by the Constitution of India."
**Instructional objectives and terminal behaviours**: The statements describing terminal behaviours are to be distinguished from goals of education which are usually vague.

Terminal behaviours are observable and measurable. Often they are derived from the job analysis or tasks required to complete a particular kind of job. Such a set of statements sometimes includes tasks or behaviours which are not specifically taught, as they are presumed to have been mastered by the learner prior to the instruction. On the other hand, there could be some behaviours that will be displayed only after long practice and which cannot be provided during the instructional period.

For example, the job of a typist might require that he types 60 words per minute and one can attain that speed using a certain method but only after some days' practice. But in the instructional period of, say, a week, the objective could be that he types using all the fingers and without looking at each type key. The speed of so many words would not be an instructional objective, only the competence using a certain method by which, at some later date, he can attain that speed, would be the instructional objective. Thus, instructional objective would be a part of a bigger whole i.e., terminal behaviours, but may not include all the behaviours/tasks that the student is to perform on the job.

**Instructional objectives and learning outcomes**: These two terms are synonymous, although there is a difference in perspective in the conceptual framework in which they are used.

The term ‘instructional objective’, in a sense, presumes that somebody, other than a learner, is planning the instructional process and that this external authority is describing the end result of that process.

The term learning outcome does not necessarily imply such a deliberate systematic planning of instruction. The learning outcome may or may not be the result of the planned instruction. It may happen due to several other reasons which may or may not be known to the learner and/or to the external authority, namely the instructor.
Check Your Progress 3

Notes: a) Tick mark (✓) the most appropriate answer from the alternatives given in each question.
   b) Compare your answers with those given at the end of the unit.

Below are given a few multiple-choice type of questions.

i) For designing an instructional strategy we should be clear about:
   a) What the learner is expected to do at the end of the programme.
   b) What the learners already know or are capable of doing.
   c) The teaching methods practised by the senior teachers
      i) Both a and b
      ii) Only a
      iii) Only c
      iv) Both b and c

ii) The difference between instructional objectives and goals of education is that:
   a) Goals are usually too high and hence not practicable.
   b) Instructional objectives are too narrow and hence not desirable.
   c) Instructional objectives are observable and measurable.
   d) There is no difference between the two.

iii) The major decision to take in the designing of an instructional strategy is:
   a) to decide what the entry behaviour of students should be.
   b) to select methods appropriate to the entry behaviour and to instructional objective.
   c) to decide how to operate within the cost and the time constraints.

iv) Given below is a list of verbs. Choose the ones that can specify the instructional objectives in behavioural terms.
   a) predict  b) modify  c) compile  d) think
   e) synthesise  f) distinguish  g) evaluate  h) compute
   i) understand  j) analyse  k) explain

11.4.6 Deciding Time Duration

Now here you will get into a problem. Some objectives take a long time - may be years to attain, while some others can be learnt in a few minutes. For example: If you want to teach a student (or from another perspective - if a student is to learn) how some Englishmen first came to India as traders, and then how the East India Company was formed and how they later started conquering and ruling over different parts of India; you will require, say, about an hour or two to describe the process. But if you want to get your students to “see” the implications of this trading strategy on the spread of colonialism and also link it with the rise of the Industrial Era in Europe, it will take more than a few hours - probably a week or more. Similarly, if you want to give opportunities to your learners to learn to “think”, “sort out evidences” and “identify gaps in argument”, etc., and for which you decide to use the project method, it may not be possible to ‘finish’ the topic even within a few hours.

Fortunately, however, in many of these objectives, the ability dimension goals are cumulative, i.e., students learn them through different, apparently dissimilar, topics and over a long period. A secondary school student is not going to start thinking only in your history period or physics period. He started thinking/feeling since his childhood. He may not have learnt many different ways of thinking, or applied those thinking modes to the topic/content which you are teaching. So a teacher’s job will be to select a method which will give opportunities
to a student to exercise his thinking modes, learn new ones if he does not already have that
mode, etc. How this is done would be clearer to you after you compare different methods
of teaching.

11.4.7 Selection of the Appropriate Method(s)

You have studied a number of teacher-controlled and learner-controlled methods in Block
2 of this Course. Any one or more (in combination/integration) of these can be used to help
learners achieve the instructional objectives.

No teaching method is singularly good or bad. It can be effective or ineffective with respect
to a particular goal. For example, a lecture giving information about the formation of the
East India Company may be good, if the goal is to pass on certain information, and certain
data about the company to the students.

But listening to a lecture does not give an opportunity to the learners to derive the
implication of such historical events. Even when a lecturer explains such implications and
they are heard and later reproduced by the learners, the listening, and then the reproducing
of certain data, do not provide an exercise to the thinking, in this case, the inferring process
of the learners. In other words, a lecture could be effective in relation to receiving some
information by the learners, but it may not be effective in terms of enabling them to think.
The lecture gets less and less effective if it presents discrete facts, unrelated data rather than
meaningful information which enables learners to build relations.

From the point of view of explanation, exposing students to the activities, a film/slide/video
programme may be a more effective medium. But it may not be efficient, it may also not
be effective if it presents unrelated facts or replicates a meaningless lecture.

Method and medium: Another important distinction to be remembered is between a
method and a medium. A medium is a vehicle for a message. One may present a message
(or a series of messages) through a teacher's voice (which is what we call lecture), or
through a tape recorder, or through a visual chart, a film, etc. The term method on the other
hand, includes a medium, but it is more than a medium in that it also refers to the way the
message is organised and sequenced, the manner in which different bits of the message are
integrated, the manner in which different media are used and related to increase the
possibility of the messages being received and comprehended by the listener.

For example, in group discussion as a method, more than one medium of communication:
verbal, facial expression, gestures etc., are used. As distinguished from a lecture (devoid of
question answer component), in a group discussion, a sequence of messages is not entirely
controlled by a teacher (although to a certain extent a teacher/leader of the group discussion
can control the flow of the discussion).

For using these methods along with the proper media, you will require certain skills and of
course practice.

You may also like to read other books on these subjects. At the end of this section, we have
provided you with a list of such readings. You may also contact your local study centre for
other useful instructional materials on this topic.

The third important point which you may keep in mind, is that a strategy for helping
students to achieve a specific educational goal may include more than one method. As the
goals become more and more complex and comprehensive, the necessity of combining more
than one method (and media) increases.

For example, teaching of history should not be just a memory exercise for remembering
dates of births and deaths of kings, their victories and defeats. One may plan to use lectures,
films, group discussions, field trips, etc. Many methods are complementary, and they support
Planning and Management of Instruction

each other, provided the package is planned after an analysis of the goals — both in terms of content, process and dimensions.

Alternative strategies: The fourth important point you have to bear in mind, is that because of these several possibilities in designing a strategy, one can/should design alternative strategies as well. Just as one cannot depend on one medium - a film (the electricity may go off), and should be prepared to have alternative media, it is also desirable to think of different methods or even combination of methods for organising and sequencing the messages. What the first message should be and whether it should be presented by a teacher or a participant should depend on the background of the learners, rather than on a rigid planning by a teacher. To follow the general rules of learning — from familiar to unfamiliar, from simple to complex, a teacher as a manager of learning experiences has to be flexible, innovative and open-minded so as to change his planned strategy to suit the requirements of the learners, if not for an individual, at least for groups of learners.

Check Your Progress 4

Rate the following factors as Very Important (A), Important (B) and Not Important (C), while selecting a teaching method. Put a circle around your choice. For example: if (A) is your choice, encircle it like @.

i) Previous experiences of students

ii) Media available to (or that which can be prepared by) a teacher

iii) Stage of cognitive growth of the students

iv) Method used by the teacher when the latter was in the school/college

v) Method recommended by an old teacher

vi) Method recommended by a foreign textbook

vii) Logic of the subject matter to be taught

viii) Motivation to study independently or in a group

ix) Frequency of the feedback required for diagnosis and remedial training

x) Method which the teacher used with his previous classes in the past

xi) Media relevant to the necessary learning experiences.

11.5 DETERMINING THE MOST APPROPRIATE STRATEGY

From among the alternative strategies which one should be used is a question frequently asked by teachers.

The answer to this question will depend upon:

i) the requirements of the learners, which strategy is most effective in relation to that learner group, and

ii) the availability of the media, the materials, the cost and time required. In other words, the efficiency of that package of alternative strategy.

Here there is one caution to be exercised. Many of us, due to several constraints that we suffer in our day-to-day life, develop a certain pessimistic, if not a negative, attitude towards anything new. Most of us are just not prepared to try any new method or strategy, even if we are fully convinced that we will not achieve the desirable results by continuing to use
the old methods. We continue to practice old ways because we are used to them or because our teachers followed them when they were in school.

It is necessary to question ourselves and to find out whether these ways are indeed most effective. May be they are effective in terms of some goals but not in terms of certain other goals which we think are important. May be we can make those ways more effective by combining them with some other methods. For example, a lecture can be made more effective by combining it with a group discussion, or a film can be made more effective by combining it with a question-answer session after the film, etc.

In other words, only by experimenting one can design a more effective and a more efficient strategy. Hence, your selection should be dependent on some feedback you get from the learners, and/or in terms of the data you collect about the learning outcomes (e.g. tests).

So, one must design some procedure to collect data regarding the effectiveness of a strategy and not depend only on one’s own opinion or feelings or tradition.

11.5.1 Cone of Experience

As mentioned above, there is no one solution to the question: Which method or combination of methods will be the most effective? But there are certain perspectives (frameworks) by the use of which we can experiment and find out a specific solution.

E. Dale, a famous media specialist and communication theorist formulated a cone of experience (see Figure 11.4). His suggestion to the designer of teaching methods/instructional strategies is to go as low on the scale as you need to, in order to ensure learning, but go as high as you can, for the most efficient learning?

Fig. 11.4: Cone of Experience

According to Dale, learning is more effective, if the learner is exposed to the concepts, not only through verbal symbols i.e., words which are abstract, but also through some experience relevant to the objectives. For example, in Physics, if a student not only hears a lecture or reads a book, but also works in a laboratory performing an experiment involving the concept/rules, he/she will then learn better - spatially (i.e. he/she will relate the concepts...
with many other concepts forming a larger network as well as his retention of that knowledge will be longer). The experience in the laboratory can be substituted by a film (higher on the scale — more efficient but less effective), or by demonstration.

Even while using verbal symbols i.e., lecturing or writing a book, care has to be taken to ensure that the symbols and the words used, are also related amongst themselves, and also related to the past and present experience of the learner. In other words, the messages should not be discrete but should be a meaningful to the learner. (What is meaningful to the teacher may or may not be meaningful to a learner.)

11.5.2 Communication System

What are the components of this system?
- The sender, the one who sends the message (could be a teacher or a student);
- The receiver who receives the message;
- The transmitter or channel through which the message is sent or received;
- Other environmental factors, e.g. other participants, classroom physical environment which may facilitate or hinder communication. Is the message sent by a teacher always received by the student in the way expected by the teacher? Does it get distorted? If so, why?

![Communication System Diagram]

Have you played the game of relaying a message? In this game, one student gives a message to another student softly in his ear and then, this is passed on to the second student and then to the third student, and so forth. Why is it that the tenth student in the chain usually gets an entirely different message? This is because of the various distortions which take place in between. But then, why do these distortions occur? Some of the reasons are:

i) The sender himself (e.g. he may not use the right words or gestures to represent the message in his mind).

ii) The receiver (e.g. he may be daydreaming and may not have heard the message completely and so may have passed on something entirely different).

iii) The channel/transmitter and the environment around the sender and the receiver (e.g. the noise in the radio), may have caused misunderstanding.
 Whatever instructional strategy is designed, the designer should see that these distortions are at least reduced even if they are not completely eliminated.

The communication theory lays a lot of emphasis on the feedback process, wherein the receiver informs the sender back about the message he/she has received.

Any instructional strategy worth the name must have a built-in feedback process so as to collect data, and where necessary, change the strategy of communication, and in our context, the method of teaching and learning.

Check Your Progress 5
Notes: a) Tick mark (✓) the true statements.
   b) Compare your answers with those given at the end of the unit.
Which of the following statements are true?
   a) Communication theory has applications to mass media only but is not relevant to classroom instruction.
   b) Noise is created only by the students.
   c) Teachers' own misunderstanding of the subject can also generate distortions in the communication.
   d) Noise in communication which is due to outside environment cannot be controlled.

11.6 EVOLVING INSTRUCTIONAL STRATEGY — SOME PARAMETERS

One may start evolving an instructional strategy from any perspective but somewhere along the line. The designer should ask himself/herself questions similar to those listed below:

Does the instructional strategy

- provide relevant concrete experiences and also help the learner to develop his own cognitive map (abstracts, concept map, flowchart, etc.)?
- move from simple to complex tasks, familiar to unfamiliar concepts and illustrations?
- follow the most effective psychological sequence, or does it rigidly duplicate the so-called logical sequence that is traditionally followed (e.g., the textbook sequence may not be the most effective)?
- encourage learners to develop new knowledge through discovery learning and inductive reasoning, even when a deductive method is followed?
- encourage the learner to subsume the new knowledge under the already formed concept network?
- provide only one linear sequence, irrespective of the differences among the backgrounds of the learners, or can it provide branching or more adaptive programmes to suit individual differences?
- provide for a feedback process so as to make corrections, i.e., does it have a built-in formative evaluation component or does it rely only on the last summative evaluation of the learners? (End of the term results, e.g., external exam at the end of the year).
- provide gradual control to the learner on the learning process? Does it give a learner control over the time and speed at which he/she can learn the material? Or, is the process completely determined by the teacher or the media of presentation used? For example, in television programmes, as distinguished from a videotape, the learner is completely at the mercy of the television producer and telecasting agency, as to when he should learn and at what speed?
- provide opportunities to interact with other participants? i.e. Does the strategy force him to work in isolation, or with the teacher alone or provide him/her with interactive situations or opportunities for participative learning?
provide learning situations which are just bookish or are they similar to real life (simulation of real life-on the job) situations?

One must, however, keep in mind that all these parameters are on a continuum i.e., they are not like an "either-or" situation. For example, most instructional strategies will involve both abstract and concrete experiences, both deductive or expository types and inductive or discovery types of learning, etc. A strategy could provide, more or less of the concrete and the abstract, of discovery or deductive type of learning experiences.

One has to select an appropriate point on this continuum, and again, the appropriateness is to be judged in terms of the effectiveness and the efficiency of the strategy.

11.7 TRYOUT AND VALIDATION

Any strategy once designed, cannot be accepted straight away as the most effective one, even if it is designed by supposedly very senior teachers or highly respected educational administrators. It has to be first tried out with a group of learners and shown to be effective, that is to say, it must be demonstrated that the students learn/achieve the instructional objectives that the strategy has been designed for. Regarding how one collects data for validation you will study in the course ES 333 : Educational Evaluation.

Check Your Progress 6

Notes:  
a) Tick mark (✓) the true statements.  
b) Compare your answers with those given at the end of the unit.

Which of the following statements are true?

a) An effective teacher designs different methods rather than use just one method for all purposes.

b) One of the parameters within which a method is to be selected is the set of characteristics of the target group.

c) According to Edgar Dale it is always better to provide concrete experiences to the learner.

d) For adults, methods involving verbal abstract symbols are more effective and efficient, although this may not be so for children.

e) What is simple to a teacher may be complex to a learner and vice-versa.

f) The sequence during learning should be similar to that used in the performance after the learning.

g) It is always more efficient to memorise a poem part by part (or line by line).

h) Modern science uses only inductive methods.

i) The teacher's main job is to cover the curriculum prescribed for the examination.

j) Developing a cognitive strategy is more important than memorising discrete information.

k) Discovery learning is time-consuming and therefore impractical in a secondary school context.

l) All learning exercises must be structured.

m) The only important function of feedback is to motivate a learner.

n) Experience-oriented methods like role-playing, allow for a higher involvement of a learner than, say, reading a textbook.

o) The modern trend is to give more control to the learner over his learning process.

p) If the nature of learning experiences provided to learners is similar to that of the performance expected in real life, the transfer of learning to real life is easier.

q) Media and methods should be combined to provide the different requirements of the learning process.

r) Multi-media packages are always superior to any single method of teaching.
11.8 LET US SUM UP

In this Unit, we started our discussion with the concept of an instructional strategy. Instructional strategy is designed systematically to help the learners acquire the desired terminal behaviours and achieve the instructional objectives. While evolving an instructional strategy, the first task of a teacher is to decide the instructional objectives and the content areas to be covered. Then the teacher should prepare a table of specifications which contains both the content areas and the instructional objectives. While spelling out instructional objectives, it is very important to specify them in behavioural terms. In this context, we made distinctions between instructional objectives, goals of education, terminal behaviours and learning outcomes. As a teacher you should also take into account the time that is required for an instructional objective to be achieved.

Then comes the selection of the appropriate method/methods. For this, you should decide the teaching method/methods on the basis of instructional objectives to be achieved and the content areas to be covered. The teacher also takes the help of different media for developing an instructional strategy. Then we discussed the cone of experience and communication system which provide two different perspectives for evolving an instructional strategy. In the end, we pointed out some parameters which are to be taken into account while evolving instructional strategy.

11.9 UNIT-END EXERCISES

1. Visit a resource centre/school having educational media/department. Identify five books and/or any other materials which can be classified as:
   i) Structured or semi-structured exercises for developing group-related skills.
   ii) Exercises which encourage discovery learning or creativity.
   iii) Individual project work as one of the methods for learning.
   iv) Exercises which encourage activities related to effective domain.

2. Prepare two instructional strategies for the same topic. Compare both of them. Explain in detail in which situation you will not be implementing the first one and will switch over to the second one. Do you think the alternative instructional strategy will be feasible in all situations/circumstances? Discuss it with your colleagues at a convenient time and with your peers at study centres. (You should ensure that the student population and school facilities remain the same.)

11.10 ANSWERS TO CHECK YOUR PROGRESS

1. Instructional strategy helps a teacher ensure that learners acquire the terminal behaviours and achieve the instructional objectives.

2. The main focus of any instructional strategy is to inculcate thinking, feeling and skills in the learners. These abilities of the learners are to be manifested through some subject content or theory. A table of specifications is a matrix wherein the above two aspects, i.e. content and abilities, are meaningfully represented so as to help the teacher develop an effective instructional strategy.

3. i) a
   ii) c
   iii) b
   iv) a, b, c, f, h, k
### 11.11 SUGGESTED READINGS


