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# UNIT 1 INSTRUCTIONAL SYSTEMS

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## 1.0 OBJECTIVES

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

- describe an instructional system;
- define instructional systems design (ISD);
- explain the concept and characteristics of ISD;
- relate the stages in the design of instruction;
- describe the characteristics of learners with varying learning abilities;
- describe the role of learning materials and some techniques in instructional systems; and
- design your own instructional system when required.

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## 1.1 INTRODUCTION

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In Block 1 we have looked at the basics of curriculum and in Block 2 we have studied various approaches to curriculum planning, designing and evaluation. In essence, in the first two Blocks we have examined the concept of curriculum and its foundations and understood the various aspects of curriculum planning and development. In this Unit the emphasis has been shifted to the transaction of the curriculum and we will here look into some theoretical aspects of instructional systems. For this purpose, instructional systems design, and experiential learning have been considered in detail.

Further, we have discussed in this Unit the characteristics of learners in terms of teaching-learning transactions.

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## 1.2 A SYSTEMS APPROACH TO INSTRUCTION

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Let us first try to understand the word “instruction” before examining any other issue.

### 1.2.1 Instruction

In a natural environment, an individual interacts with the components of the environment in an informal and unorganized manner, leading to unanticipated or unspecified learning. However, attaining pre-specified and desired learning would depend upon the provision of a controlled environment for the individual to interact with. Instruction involves the provision of a controlled environment with which the individual can interact, leading to the attainment of certain pre-specified learning outcomes or instructional objectives.

Hence, instruction may be considered as the process of providing a controlled environment consisting of various components with which individuals interact and gain experience, leading to their attaining certain prespecified learning outcomes.

Instruction has been defined as the directing, teaching and/or imparting of knowledge. The word is commonly used to mean ‘guidelines’ or a set of directions to carry out some procedures to attain pre-specified goals, e.g. the instruction attached with any home gadget or appliance, the instructions of an army commander to his soldiers, etc.

In an educational context, the term ‘instruction’ is used for all the experiences that are organised to bring about the learning process. You may ask why we do not use the term ‘teaching’. Well, there is nothing wrong in doing so, provided we understand ‘teaching’ in the broadest sense of the term. It should not be taken only to mean the ‘experiences’ provided by the teacher directly. The possibility of the word ‘teaching’ being taken in a narrow sense always remains. Hence, educationists generally feel that ‘instruction’ is a better word for expressing/ including all the experiences and activities organised for bringing about learning.

### 1.2.2 Instructional Systems

A system has a number of components operating together in an interrelated and interdependent manner towards the attainment of objectives of teaching-learning process. The effective combination of the main components of instruction, which includes the identification of objectives, careful planning and implementation, and testing of the outcomes, is called the instructional system.

As mentioned earlier, instruction involves the interaction of an individual with an organised environment, leading towards the attainment of certain instructional objectives otherwise called as behavioural changes. In other words, when students with a certain type of behavioural pattern (and cognitive structure) go through the instructional system, they come out with a changed pattern of behaviours (and cognitive structure). Quite simply, we can say that the students enter the instructional process with certain behaviour, which can be termed ‘entry behaviours’. They are expected to achieve certain terminal behaviours which can be termed ‘expected terminal behaviours’. The instructional process is designed in such a manner as to achieve the expected terminal behaviours. We may thus say that the expected terminal behaviours are what we intend to achieve in students through an instructional process and that the actual terminal behaviours are what they actually achieve. The difference between the expected and actual terminal behaviours is due to a lack of effectiveness in the instructional process. Thus, the differences between the expected and the actual terminal behaviours would act as feedback. In this model, the entry behaviour is the input and the actual terminal behaviour is the output of the instructional system.

**Check Your Progress 1**

*Notes: a) Space is given below for your answer.  
b) Compare your answer with the one given at the end of this Unit.*

What is meant by an instructional system?

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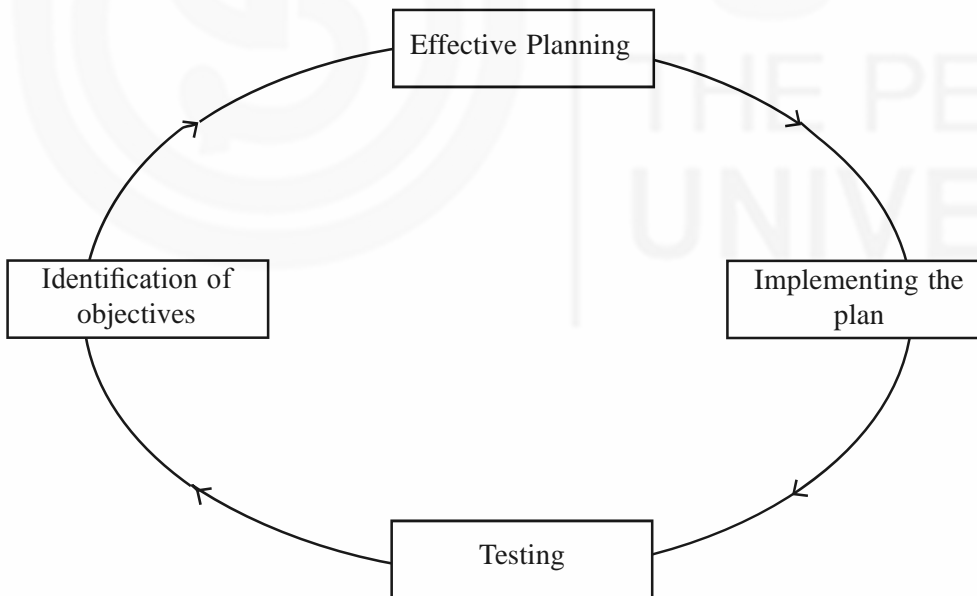
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**1.3 INSTRUCTIONAL SYSTEMS DESIGN (ISD)**

Instructional systems design is a four-phase process which consists of stating specific learning objectives, planning effective ways to realise them, implementing them and testing them for purposes of feedback and improvement.



**Fig. 1.1: Instructional Systems Design**

Here the term ‘design’ refers to purposeful planning which aims to present a structure of learning activities and to provide a scheme in which means to achieve pre-defined objectives are specified. Based on this explanation, we may say that instructional design refers to a systematic and purposeful approach to planning and organising means for the realisation of predetermined learning objectives. In essence, instructional systems design is an approach that helps to improve the quality of instruction through the systematic planning of teaching-learning activities which include print material, computers, media-use, etc. The following assumptions are used as a base for the designing of an instructional system:

- i) No two learners are identical in behaviour and abilities. They differ in their prior knowledge/experience and in their learning characteristics, i.e. learning style and learning rate, level of motivation to learn, etc.
- ii) Educational methods and procedures have certain merits and defects. All of them do not have the same potential for all objectives and all learners. Different levels of objectives demand different instructional designs.
- iii) Pre-requisite experience and practice of complex learning activities can increase motivation and prevent the over-emphasis of low level objectives.
- iv) Exposing learners to a wide range of subjects, ideas, attitudes, etc. is not a substitute for the identification of relevant content and related skills and competencies.

Having clarified the use of term 'institutional systems design', we shall now turn to its characteristics.

### 1.3.1 Characteristics of ISD

An instructional systems design describes the process of specifying and producing particular learning situations in order to effect desired changes in the behaviour and cognitive structure of the learner. They provide a highly specific and detailed account of teaching procedures which are based on empirically verified or verifiable principles. The process of learning thus becomes a scientific, controlled, and goal-directed activity.

To elaborate this further, an instructional systems design:

- specifies learning outcomes in terms of the learner's observable performance;
- selects and arranges stimulus situations to be displayed to the learner;
- specifies the conditions under which a learner's response is observed;
- specifies criteria for acceptable performance; and
- modifies the conditions when the learner's responses do not correspond to the specified outcomes.

In essence, the characteristics of an instructional systems design are:

- planned arrangement of instruction, instruments and procedures;
- inter-dependent arrangement of its elements, i.e., instruction, instruments and procedures; and
- goal direction, i.e. an instruction systems design has a goal or goals for which it has been designed to effect student learning.

In our discussion, you may have noted that we have not included 'teacher' in the systems design. This is because of the fact that there are many types of learning situations where information is transmitted through media, other than the teacher, for example through books, programmed texts, television/radio programmes, computer discs and so on.

Having identified the important characteristics of an instructional systems design we should also touch upon the stages that one should follow in designing an instructional system.

An instructor can work as a designer who is responsible for identifying the objectives and developing the procedural plan of the system. But he/she can perform this function only after obtaining a thorough understanding of the principles and techniques of teaching-learning systems design.

### 1.3.2 Designing Instructional Systems

Though the designing process is complex, the guidelines being discussed here will help us analyse most of the possible alternatives to arrive at a solution that achieves the pre-determined instructional objectives most efficiently.

The system designing process consists of the following three stages:

- i) analysing system-requirements;
- ii) designing the system; and
- iii) evaluating system-effectiveness.

We shall briefly discuss each stage in the given order.

- i) **Analysing system-requirements:** At this stage we should identify the objectives to be achieved at the end of the teaching-learning process and consider the available resources and possible constraints in achieving them. The learning objectives are specified and stated in terms of learning outcomes so that we can empirically verify the learner's achievement.

In analysing the available resources and possible constraints, we should collect information about all the variables that might affect the performance of the system. These variables may be:

- The environment in which the learning system will operate. (The course content and objectives of each course should suit the overall aim/purpose of the programme.)
- The resources in terms of available human power, instructional materials, equipment, audio-visual components and facilities. (Information pertaining to them will help the designer to plan the system more efficiently.)
- The constraints in terms of time, autonomy of learner/teacher, cost, etc. (This will help the designer work out a compromise design by accommodating the constraints.)
- A detailed description of learner characteristics. (This includes the number of learners to be enrolled, their entry behaviour, their academic, personal and professional background, their aspirations and learning study skills, etc. This information will help the designer conduct a realistic needs assessment and, using it as a base, choose appropriate learning objectives and relevant subject matter).

Let us now consider the second stage.

- ii) **Designing the system:** After specifying the objectives and analysing the resources and constraints, the designer generates possible alternative solutions and selects the best one. Simultaneously, the designer reviews each element at every phase of development and checks whether the objectives are being achieved or not. Based on the ongoing analysis, the errors or omissions are corrected. Thus the systems design includes procedures for progressive self-correction.

Having looked at the first two stages, let us now take up the final one.

- iii) **Evaluating system effectiveness:** After providing the initial design plan, the designer should examine his/her work to find out whether or not the material and procedures chosen will assist the learners in realizing the objectives. This will help ensure that each learner has enough information and guidance to benefit and learn from the design developed.

What are the significant points that we can draw out of our discussion in relation to the design and use of the instructional systems design? They are:

- i) System objectives and resources should be specified before decisions are made about design.
- ii) The process of systems design should provide scope for developmental corrections.
- iii) The process of systems design should be instructive.
- iv) An instructional system should operate most efficiently when all the components assist one another in achieving the learning objectives.
- v) An instructional system is designed to operate compatibly with other systems.
- vi) No system component or procedure can be modified without having an effect on other components or procedures.

The instructional inputs adopted must take into account the influence of various learning characteristics which highlight inherent individual differences. We shall take up this issue in the next section. But, before that, here is a self-check question for you.

**Check Your Progress 2**

*Notes: a) Space is given below for your answer.  
b) Compare your answer with the one given at the end of this Unit.*

Define the term instructional systems design and list the stages in the system designing process.

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## 1.4 LEARNER CHARACTERISTICS

Some characteristics of the learners play an important role in implementing the outcomes of instruction in both face-to-face and distance modes of education. Some of the most relevant characteristics are:

- i) individual differences;
- ii) readiness;
- iii) motivation; and
- iv) study conditions.

These are all factors which influence learning of an individual in both face-to-face situation and those of learning at a distance.

- i) **Individual differences:** The effectiveness of instruction is influenced by several kinds of individual difference among learners. Important differences are

a) cognitive strategies, b) rate of learning, c) learner entry level capabilities, d) cultural background of learners, their age, sex and so on. Entry capabilities/behaviours are the basis on which instruction strategies are planned and implemented. These behaviours are assessed while framing a curriculum.

According to Skinner (1953), individual differences in learner behaviours are the result of the organism's genetic endowment, and reinforcement. Thus, Skinner believed that defective genetic endowment and/or defective reinforcement contingencies in an individual's experience result in a failure to acquire a variety of learned behaviours.

Learners differ in their ability to comprehend, memorize, retain and apply behaviours, possess different receptivity to information and knowledge, and they also display different learning outcomes. Some learners will engage themselves in learning activities enthusiastically, while many will be more or less passive, and so on.

It is possible; however, that some of the problems that arise due to individual differences can be overcome. We can produce materials, both print and non-print, which are self-instructional in nature and provide individual tutorial/academic counselling or group discussions, etc. at the study centers. Obviously, this entails setting up study centers across the country to establish some face-to-face interaction or other personal contact programmes to overcome the difficulty.

- ii) **Readiness:** According to behaviourists, readiness for learning comprises the behavioural repertoire that the learner brings to the learning situation. Readiness for learning is an important factor in designing instruction. The concept of readiness interpreted as age, or level of maturation, is not acceptable to Skinnerian. According to them, the age or development level of an individual is of little help in determining the presence or absence of readiness (Bell-Gradler, 1986). Both Skinner (1953) and Gagne (1977) conceptualized readiness as pre-requisite skills.

In cognitive terms, 'readiness' could be interpreted as:

- the learner's capacity to comprehend and assimilate new information/knowledge; and
- the learner's ability to construct logical cognitive structures (Piaget, 1973).

A positive sense of self-worth and personal identity generally helps the learners commit themselves more readily and fully to the learning situation.

- iii) **Motivation:** Educators consider motivation to be one of the major conditions for effective learning, since it gives direction and intensity to behaviour. This viewpoint is especially applicable in cases of adult and lifelong learning. Adults look for learning experiences to satisfy specific life needs like getting a new job, promotion, social status and so on. Theories of learning also focus on environmental factors that may lead to learner motivation such as arousing the learner's attention, providing appropriate rewards, producing self-instructional, learner-oriented, meaningful and interesting learning materials. Some theorists consider the learner's failure or success as the primary source of motivation.

According to Piaget (1973) the main source of motivation is the need for equilibrium. Needs may be physiological, affective or intellectual. For some, need can be explained as a state of mental disequilibrium. Individuals may have some ambitions which they seek to achieve and that motivates them to do their best. Motivation can be intrinsic, i.e., satisfying the urge to seek knowledge for self-esteem, pleasure etc. For example, the scholar who employs all his/

her energies in reading literature or a researcher who spends most of the time available in the laboratory and so on. It is possible that many of the motivated learners who gain the highest score at a particular stage may not have a previous record of academic success either in school or in post-school education.

What appears to make the difference is the high level of commitment, motivation, identification of suitable tasks, awareness of the benefits of acquiring competency, etc. The value of the learner's motivation to learn is very evident among those who study through a distance mode.

A study conducted in West Germany (Kahn and Cropley, 1986) found that the differences between face-to-face and distance teaching were largely in terms of their impact on the learners' psyche.

One such difference lay in the fact that distance learners have clearer and more differentiated thinking about the reasons for undertaking the course in question. That is, they select an academic course consciously and hence possess a high level of both intrinsic as well as extrinsic motivation, which results in higher success rates.

- iv) **Study conditions:** As seen from the nature of distance education, the distance learners generally find less time for their studies since they are only part-time students. They are more frequently confronted with their job, household and social obligations. Besides, their isolation from both the institution and from their peers seems to have impact on distance learners, who mostly depend on their own resources and motivation, and work in a setup that suits their tastes. Such study conditions ask for high quality instructional materials based on the principles of programmed instruction.

Information on learner characteristics will influence the starting point of the materials which are being developed, the level of language adopted by them, and the style of the examples and case studies provided in them.

Let us pause here and recall what we have studied so far in this Unit.

In Section 1.3, we have defined the term instructional systems design and described its components. Having done so we have looked into the varying learner-characteristics and concluded that to effectively meet the needs of distance learners, we need instructional materials of a good quality.

Now we shall discuss what we mean by instructional materials. In distance education, print and non-print media like audio/video cassettes constitute instructional materials. However, the extent to which each of these is used for purposes of effective teaching/learning depends on the course-contents, the institution and so on. By implication, dependence on the use of each medium varies from one institution to the other and one course to the other. However, we shall here take up the audio/video and human-element components.

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## 1.5 INSTRUCTIONAL MEDIA

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As a result of the phenomenal advances in technology an increasing number of learners encounter various forms of it in their day-to-day life. The process of familiarization with information technology is reinforced by an educational system in which the mass media are becoming an important component of curriculum planning and implementation.

Technological changes have their own impact on education and the use of media has brought some radical innovations in many ways, particularly in teaching learning systems. We consider these changes as a means to transform and enhance the activities of educational institutions, in particular those focused on



by higher education. Printed texts, broadcast television and radio, audio and video cassettes, computer programmes, CD-ROMs, Internet etc. are some of the instructional media used in education today. However, throughout the practice of distance education in India and elsewhere in the world printed texts have remained paramount in importance. Nevertheless, the use of media in teaching and learning at a distance is the most significant pedagogical development. Media provide greater opportunities for in-depth thinking, self-pacing and revision. Its form and use has to be identified in the early stages of curriculum planning and development.

In selecting the medium of learning, we need to at least consider the two following factors:

- i) **Learning objectives:** For instance, if the objective is affective, visual media may be most suitable. But if the objective is cognitive, the printed word will probably be more effective. For the teaching of skills face-to-face contact or viewing a television programme will be ideal.
- ii) **The form of knowledge to be imparted:** Each discipline has its unique concepts, logical structure, method of enquiry, etc. For example, history depends on the availability and interpretation of evidence. Physical sciences, on the contrary, require the observation of phenomena, questioning, hypotheses, experimentation and confirmation/rejection of evidence. The choice of the medium should depend on the nature of the discipline/subject we intend to teach.

The advent of live satellite-telecast systems has added a potentially powerful communication tool for the use of distance educators and learners. Such systems, when integrated with a well-designed distance education service, can enhance learning by fostering increased verbal and visual encoding, permitting immediate interaction with the teacher and providing a chance for affiliation with other learners. In Figure 1.2, we have given you a diagrammatic representation of how media interact with the learner, subject matter and the teacher.

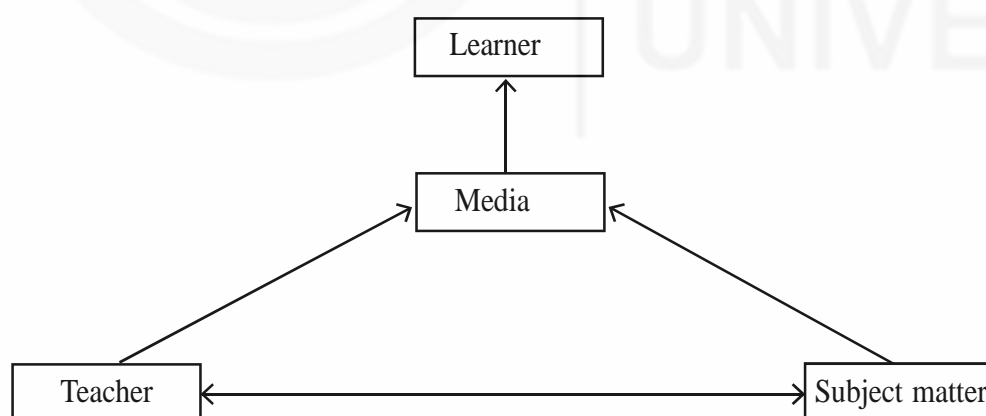


Fig. 1.2: Learning Through Media

We have dealt with the use of media in the teaching-learning process in detail in Course **MDE-418**. As a detailed discussion of the use of media is redundant here, let us take up the human element in distance education.

**Face-to-face contact:** Higher education traditionally uses the library for research and reference purposes.

In distance teaching, dependence on library services is reduced to some extent by making self-instructional materials and supplementary readings available to the learners. Face-to-face contact however has become a very important component in satisfying the learners. In the distance mode of teaching and learning, study centers at various localities take care of academic and learner-based difficulties.

It is also desirable to motivate the learners to successfully establish personal rapport with the distance education institution represented by academic-counsellors and other learners. Moreover, at a higher level of education, distance study should be truly communicative in character rather than being a process of only providing study materials and comments on the learners' work. These functions can be served effectively through face-to-face contact sessions, and synchronous media interactions.

Furthermore, for certain kinds of learning (surgery, for example) where the learner has to acquire some type of psychomotor skills, non-contiguous communication alone is not enough. Even in the case of teacher training the trainees are expected to put the theory (which they have learnt at a distance) into practice in the classroom.

We have just talked about the instructional systems design, which is mostly dictated by pre-determined instructional objectives and the need for variety in instructional media to suit a wide range of learner characteristics. We presume that you are already familiar with the different aspects of classroom teaching. These are further reinforced in Unit 2 of this Block. Hence, we will not be talking about it here; what are important to us at this stage are the processes and outcomes of evaluation.

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## **1.6 EVALUATION: PROCESSES AND OUTCOMES**

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Having talked about instructional systems design and various teaching/learning techniques in the previous sections, we shall discuss in this section the evaluation processes in terms of teaching/learning system. Before we discuss the topic under consideration we should clarify what we mean by the term 'evaluation'. Evaluation is not merely assigning grades to learners. It is a continuous process of acquiring and processing information in order to improve one's learning and to assess decisions made in designing an instructional system. If we analyse the above statement we easily notice that it has three important implications for the entire teaching learning system. They are as follows:

- i) Evaluation is a continuous process, and not a onetime performance-measurement, affected at the end of a course/programme. It starts at the stage of curriculum development and continues until the instruction ends.
- ii) Evaluation process is goal-directed. It is aimed at finding ways and means to improve learning and thereby to achieve learning objectives more effectively and more efficiently.
- iii) Evaluation requires the use of accurate and appropriate measuring instructions to collect information for taking decisions about the quality and operation of education.

It is clear that in designing an effective learning system, one of the earliest steps we need to take is to prepare a comprehensive evaluation plan, which should be developed soon after the learning objectives have been formulated. This practice will help us to:

- determine whether the objectives are attainable or need revisions before we start designing the instructional system;
- collect data/information in a form that suits our purposes adequately and at a time when it is available, otherwise the opportunity to collect specific information may be lost; and
- have sufficient time to test the effectiveness of a design.

## A word of caution

In our discussion on evaluation, we have not laid any special emphasis on evaluation in distance education. However, it should not be difficult for us to draw the relevant inferences and apply them in the context of distance education. In the present discussion, we shall take up a few relevant items for discussion here, to provide coherence.

In sub-sections below, we shall look into the following two types of evaluation which are used in the context of distance education.

- continuous evaluation; and
- terminal evaluation.

We shall discuss them in the given order at some length.

### 1.6.1 Continuous Evaluation

As the expression indicates, here we are concerned with evaluation as a continuous process which is indispensable during the teaching-learning activities. We use the following two devices to provide feedback to the learner through continuous evaluation.

- Intext questions:** These include self-check questions, exercises and activities for the learner. The questions are built into the learning materials. The learners work on these questions on their own, and are not required to submit the answers to these questions to the teacher/institution. For purposes of immediate feedback, model answers to these questions are usually presented at the end of the study unit. One of the main purposes of presenting these questions in the learning materials, therefore, is to provide feedback to the learners as to how much content they have grasped or how many objectives they have achieved, etc. Intext questions are, usually, objective type or very short answer-type questions. The questions provide the learners with an opportunity to apply the knowledge gained after working through the content, to judge their comprehension, and to provide for practice or drill for the retention of information. Besides, these questions help the learners to remain on the right track, sustain their interest and promote motivation.
- Assignment questions:** This is one of the important means for continuous assessment of the learners' performance. An assignment is a set of questions which the learners work on and submit to the institution or to the academic-counsellor for his/her comments and award of grade. An assignment thus functions as a tool to:
  - a) initiate pedagogical interaction between the learner and the teacher;
  - b) reinforce learning;
  - c) provide feedback to both the distance institution/teacher and the distance learner;
  - d) assess the learner's progress on a continuous basis; and
  - e) break the wall of isolation between the learner and the teacher.

Depending on the nature of the feedback to be given to the learner, two types of assignments are used in distance education. They are:

- i) **Tutor marked assignments (TMAs):** As the term indicates, the assignment responses are to be evaluated by tutors/academic-counsellors. In TMAs, the question is to find out how well the content has been understood. TMAs generally consist of essay type, projects and practical questions.
- ii) **Computer marked assignments (CMAs):** Unlike TMAs, the CMAs are evaluated by computers (corrected by optical mark reader - OMR). In most cases CMAs supplement or complement TMAs. The main function of CMAs is to test the actual knowledge of the learner. CMAs consist of a number of objective type questions. In this way, CMAs have a wider coverage of the content taught than TMAs, which assess the selected objectives of the instruction.

It should be clear by now that the main function of continuous evaluation is to provide feedback to the learner and the distance education institution about learner-performance, the effectiveness of the learning materials and of the teaching arrangements.

Having touched upon continuous evaluation, we shall now look into terminal evaluation.

### 1.6.2 Terminal Evaluation

This includes the term-end examination (TEE). Term-end examinations are directed towards an assessment of the level of learning outcomes of a course/programme. They explore the link between what a learner is expected to learn and what has actually been learnt. In terminal evaluation of learning outcomes we seek answers to the following:

- the terminal objectives achieved by each learner;
- proportion of students in achievement of certain levels of learning objectives; and
- the instructional procedures that need to be retained and those to be modified (Davis, et al. 1974).

**Assigning grades:** The most important purpose of terminal evaluation is to provide a base for the assigning of grades. Grading is both an academic and administrative procedure for classifying learners and reporting their level of performance after they have completed a course/programme as also for certification. It has become a type of academic currency for inter-change between educational institutions and the community and is an end-product measure. Each learner is categorized in terms of his/her level/amount of learning in relation to other learners.

Grades are represented either by letters or numbers. There are several ways of translating test scores into grades. For example:

**Number grades:** In this scheme the test scores are expressed in terms of standard number grades, i.e., 7, 6, 5, 4, 3, 2, and 1 or 5, 4, 3, 2 and 1 depending on the point scale we choose to use.

**Letter grades:** In this scheme the test scores are expressed in terms of standard letter grades, i.e., A+, B+, B, C, D and E, or A, B, C, D and E, depending on the point scale we choose to follow.

Each grade (number or letter) has a notional value. (Consider Table 1.1)

**Table 1.1: Notional value of Grades: An example**

Grades		Notional Value
Letter	Number	
A	5	Excellent
B	4	Very Good
C	3	Good
D	2	Satisfactory
E	1	Poor

Each institution takes its own policy decision to have a specific grading system. For example, it could be a 5-point scale (as given in Table 1.1), or a 7 point scale, and so on.

The learner who fulfils all the requirements of the course and completes the programme successfully is awarded the degree.

### **A word of caution**

Let us conclude this Unit with a word of caution. You would have noticed that in section 1.6, we have not talked about the evaluation of a programme or course. This is so because we have already written about it in Unit 4, Block 2. Besides, we have not talked at length about item-preparation, evaluation in general etc., as we have devoted a full Block to 'evaluation', i.e. Block 2, MDE-411 in the Post-graduate Diploma Programme in Distance Education. In this section, we have touched upon what is relevant for our immediate purposes in relation to the teaching-learning transaction.

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## **1.7 LET US SUM UP**

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In this Unit we have:

- defined instructional systems design as a process of formulating specific learning objectives, planning effective means to realise the objectives specified, and evaluating them for feedback;
- listed basic assumptions that form the base for designing an instructional system and pointed to the characteristics of ISD;
- discussed instructional media while emphasizing that media use in distance education is one of the most significant pedagogical developments today; and
- highlighted two important student-evaluation processes usually used in distance education, i.e., continuous evaluation and terminal evaluation, and referred to Unit 3, Block 2 for details about programme evaluation.

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## **1.8 ANSWERS TO CHECK YOUR PROGRESS**

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### **Check Your Progress 1**

An instructional system is a combination of inter-related and interdependent components like instructional objectives, planning and implantation of instructional strategies and evaluation of instructional outcomes. The strength of an instructional process lies in the rigorous process of increasing the entry level capability of the student to the terminal capability.

### Check Your Progress 2

The term 'instructional systems design' can be defined as a process of formulating specific learning objectives, planning viable means to realise the specified objectives and evaluating them for feedback, in order to improve the system.

There are three stages involved in the systems designing process. They are:

- a) Analyzing of the system-requirements;
- b) Designing the system; and
- c) Evaluation of the system-effectiveness.

