UNIT 7  DESIGN AND PREPARATION OF SELF-INSTRUCTIONAL MATERIALS

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7.0  INTRODUCTION

The success and the effectiveness of distance education/open learning systems largely depend on the quality of learning materials in print and non-print media. Writing for distance learners is a more challenging task than writing a book or for a journal. Various means and ways of communication are used to develop and deliver learning materials to the students pursuing their study through distance mode. Distance education or distance teaching-learning materials are popularly called self-instructional materials (SIMs). SIMs can be designed for both the on-campus and the off-campus students. The main objective of SIMs is to stimulate and facilitate independent learning by the student. In other words, SIMs create an environment where the student gets motivated and learns independently. Thus, SIMs perform the functions of an effective, efficient and inspiring classroom teacher in the distance learning situation.

You have studied about different media in Unit 5, their selection and integration in Unit 6 in detail. In this unit, we shall deal with the design and preparation of self-instructional materials touching upon the basic concept of SIMs, the features and pre-requisites of SIMs, the instructional strategies for distance education and the process of planning and development of SIMs.

7.1  OBJECTIVES

After careful or thorough reading of this unit, you should be able to:

- explain the concept and need of self-instructional materials;
- describe the features of SIMs and pre-requisites for course writers/designers;
- apply the instructional strategies for distance education; and
- discuss the process of writing a self-instructional unit.
7.2 INSTRUCTIONAL STRATEGIES IN DISTANCE EDUCATION

Teaching and learning at a distance needs special instructional strategies to help students achieve their course objectives. There exist a range of instructional strategies adopted by distance education institutions. Let us discuss, in brief, the main strategies below:

i) Text Material Strategies

Specially designed printed text is a popular strategy in distance education. The printed texts are developed on the basis of the principles of designing the self-instructional materials (SIMs). The students learn from the SIMs independently, which requires skills of reading/study. We shall discuss the concept, process of planning and development of self-instructional materials in detail in the subsequent sections of the unit.

ii) Broadcast Strategy

Radio broadcasting or telecasting by using specially developed audio or video cassettes is another important strategy adopted by distance education institutions.

iii) On-line Strategy

This is the latest strategy followed by distance education institutions using high-tech for offering education to distance students having access to high-tech at their homes or at designated places.

A combination of instructional strategies is always more effective than one strategy. In addition to the above strategies, there is often need to supplement or complement the offer of programmers/courses by using different activities such as project work, face-to-face contact, peer group discussions, audio-visual materials, teleconference, etc. which are discussed below:

a) Project Work: Broadly, the objective of the project work is to develop abilities and skills in students and to apply knowledge gained through (studying) the units. The project work helps the students link their knowledge with the real life situations and apply their knowledge to solve the problems.

b) Face-to-Face Contact: Face-to-face contact programmes are organized to answer queries of students and to enable them to achieve higher level objectives, including acquiring psychomotor skills. These programmes can be organized in different ways keeping in view the objectives. Seminars, workshops, counselling sessions, laboratory work, residential schools, etc., can be the face-to-face programmes primarily meant for group interaction between the students and teachers, and among students.

c) Peer Group Discussion: Distance learners generally do not get an opportunity to interact and share their problems/ideas/experience (related to their study). Learning through peer group interactions is quite effective in distance education. In addition to the above mentioned face-to-face contact programmes, the study centers of distance education system work as contact places for peer group discussions on different occasions.

d) Audio-Visual Materials: The use of multiple media strengthens distance teaching-learning process by exploiting the potential of each individual medium. Appropriate media are selected and integrated to achieve a variety of course objectives: cognitive, psychomotor and affective. We have discussed these points in detail in Unit 6.

e) Teleconference: Audio conferencing through telephone technology, one-way video and two-way audio conference or two-way audio and two-way video conference through a combination of satellite technology with other technologies and computer conferencing are also widely used by distance education institutions to provide visual experience to the students.
7.3 CONCEPT OF AND NEED FOR SIMs

The primary goal of distance education materials should be to help the student learn independently and at his own pace. In other words, the SIMs promote the concept of self-learning. The self-instructional materials (SIMs) should, therefore, be based on the theory and principles of self-learning. Let us discuss the concept and need of SIMs in distance education in the following sub-sections.

7.3.1 Concept

Distance education materials differ from a textbook or a journal. These materials are developed in self-instructional format to promote self-learning. Effective SIMs arouse and sustain interest in the learners for learning. Unlike an article or a book the SIMs do not aim at scholarly presentation. Thus, SIMs are specially designed to provide instruction to the identified target groups with the purpose of enabling them acquire knowledge, attitudes and skills, and promote self-learning. In the distance education system the learners mostly study at a distance; from their home or the workplace. They do not get opportunity to interact with either the open learning institution or the teacher or the fellow learners frequently. The learning material is, therefore, designed in such a way that the functions of an effective teacher are built into it. In other words, the distance teacher in the learning material performs the functions of a classroom teacher such as directing the students, motivating them, assessing them, explaining the concepts, asking questions, etc. These functions facilitate independent learning popularly known as autonomous learning or self-learning among the distance learners without much external support.

SIMs are based on the various theories of learning and communication. The theoreticians such as behaviourists, cognitivists and humanitarians have had great impact on the design and preparation of SIMs. The broad principles of programmed instruction such as division of content into small (but manageable) steps, logical and sequential ordering, feedback on performance, tryout (developmental testing), etc., act as the guiding factors in designing and development of SIMs.

7.3.2 Need

In distance education, students are away from the distance education institution. Neither the teacher nor the peer group is around the learner to help him in his learning from the materials. In order to provide for the problems associated with distance of the institution, teacher and the peer group from the learner, the learning materials should be such that they are self-contained or self-sufficient self-instructional/learning, self-explanatory, self-directed and also self-assessing/evaluating. Only then these materials facilitate their learning, and lessen their dependency on external support. In other words the students need or look for the learning materials which are best suited to their needs and requirements. These materials should also provide for learners control over their learning. The learner should be able to learn according to his own pace of learning. The load and style of presentation of content should fit into the learning habits, prior knowledge, language competency, etc., of the learners.

The learning materials should be able to create a learning environment in itself for the students. These materials should give them the feeling as if some invisible teacher is there catering to their study and learning needs. They should feel that they are being taught, directed and assisted by someone. In doing so the personalized style of presentation might cater well to the needs of individual learners.

In a system where the teacher is not present to answer a student’s query or explain and clarify a point or correct the student. It is essential to provide materials that fulfill the above needs and requirements of learners with a view to guiding the student at every step of his learning. Therefore, SIMs are to be designed and developed along sound principles of pedagogy and andragogy.
7.3.3 Components of SIMs

SIM consist of two broad components that serve specific pedagogic functions. These components adhere to the principles of effective learning. The components are:

- Active learning
- Access devices

Let us discuss both the components in detail:

A) Active Learning

One of the basic principles of learning is the active participation of the learners in the learning process. The learner cannot learn, just by being a passive recipient of information. S/he has to actively select appropriate content and involve himself/herself with the content. S/he learns by performing various pedagogic activities such as perceiving, comprehending and conceptualizing learning tasks/problems. We know from our experience and also from the theories of learning that eliciting a response is an essential component of teaching-learning activity. The instructional activities open up the genuine interaction between the student and the text. The activities stimulate the learner to learn. In other words, the SIMs should make the student active and responsive. This is possible only when SIMs are based on the principles of effective learning. The sequencing, presentation and language used in the materials should be appropriate to the level of the existing knowledge and the ability of the learners.

Learning activities are of different forms and are deliberately built into the teaching-learning materials. Since students remain away from the both, the distance teacher and the distance education institution, during most of their study time, they will be learning in a passive manner from the learning materials delivered to them. We have to break this passive learning by incorporating various pedagogic activities and through appropriate presentation of the content in print and non-print media. There can be three broad types of learning activities in SIMs. They are:

i) Thinking: The SIMs are designed to stimulate thinking in students, among other things. The intext activities are so designed that they motivate the students to be attentive and interact with the content being taught/learnt. Objective type questions motivate them to think and find alternative answers to the questions asked. Thinking helps them retain knowledge, reinforce further thinking and solve problems.

ii) Writing: SIMs provide opportunities to students to reflect upon before they write and consolidate what they have learnt. Writing activities sharpen their communication skills, which is essential for a successful social life. Also, self-instructional materials make them active and attentive. Activities related to writing involve thinking on the part of the students. Such activities have the following advantages.
strengthen the memory
extend what has just been learnt to other items in the same area
apply what has been learnt to a new situation
test comprehension
provide periodic check on learning of the distance learners.

iii) Doing: There is no second opinion on the fact that one learns best by doing. Practice strengthens learning. Some courses involving skill development require special practical activities for students or do something manually. These activities can be of different types, such as conducting experiments, collecting information/data, reading maps, drawing figures, etc. Practical activities are deliberately built into the SIMs to increase active learning in students.

B) Access Devices

The access devices are essential components of effective SIMs. As the term indicates, these devices make the learning materials more accessible to the students. The access devices are those devices which help the course writer go as close to the students as possibly he can and help them find their ways into the learning materials, i.e. allow them to go as close to the content as possible. The access devices provide an outline of the whole course or unit as the case may be. By using a variety of access devices in different formats, we can make the teaching unit interesting.

There are three main functions of the access devices. These devices:

- enable students to find what they need to study in the material i.e. the means and ways to reach the content,
- make the content more intimate to the students and help them grasp what is presented in the learning materials, and
- perform the functions of a live classroom teacher i.e. build a teacher into the learning materials.

Some of the access devices used in SIMs are as follows:

i) Title

An appropriate title of the learning unit tells students what the unit is all about. The title, therefore, should be more explicit and communicative. The title of the unit/section/sub-section should be simple to learn and recall whenever required. The title must be stated clearly and specifically.

ii) Structure of the Unit

The unit structure is based on the concept mapping. Sections/themes and sub-sections/sub-themes are presented in the most logical sequence. Each section and sub-section draw the students’ attention to the learning points. They can have access to the learning points they want to study. They can straightway skip or skim any learning point presented in the structure, if they wish so.

iii) Objectives

In each unit of SIMs, objectives are stated in behavioural terms i.e. in terms of learning outcomes. The objectives help the course writers know the scope of the content to be included and discussed in unit. They also help the students know the standard to be
achieved after going through the unit or programme i.e. the objectives stated in terms of learning outcomes will tell the students of what we expected from them once they completed working on the unit.

iv) Illustrations

The illustrations, diagrams, charts, figures, drawing etc. help clarify the content being learnt. These devices make the learning materials more attractive and effective for the students.

v) Summary

The summary of the unit can help the students recapitulate and retain what is discussed in the unit. The summary can be presented in different formats to make instructional materials more interesting and attractive.

vi) Glossary

Some units are accompanied with the glossary of crucial key, new and technical expressions used in the unit. Glossaries also help the students understand the central point of discussion.

Besides the above mentioned access devices, it is the resourcefulness of the course writers to make learning activities more accessible to the students and help them promote knowledge, skills or attitudes thus gained through working on the instructional materials.

Check Your Progress

Notes: i) Space is given below for your answer.

ii) Compare your answer with the one given at the end of the unit.

2. List out different access devices that you find in SIMs.

7.4 DESIGNING SIMs

Designing and developing SIMs require proper understanding of the key features of SIMs, pre-requisites of course writers and designers involved and the actual process of designing SIMs. Let us discuss these below.

7.4.1 Key Features of SIMs

SIMs are characterized by certain features. Though these features of SIMs vary a little depending upon the objectives/purpose and style of presentation there are a few constant features of SIMs. Let us look at these features below.

SIMs, though called so, they focus more on learning than on teaching or instruction. These are based on the needs of individual learners and not on the interests of teachers or open learning institutions. These provide to students as much control as possible over their learning. SIMs are, therefore, called self-learning materials (SLMs) these days. SIMs have certain features that characterized them. The important of these are as follows:
Self-explanatory

The SIMs are self-explanatory in the sense that the student can study through learning materials and understand the content without much external help/support. Therefore, these materials should be free from any ambiguity in terms of content, presentation and language. The content should be logically arranged and the presentation should be simple and effective, and explain every thing to help the learner learn or promote his/her learning.

Self-contained

SIMs should be self-contained or self-sufficient. All the essential content required by the student to achieve the course objectives is to be included in SIMs. The student need not hunt for additional readings or materials to accomplish his/her objectives because of problems in accessing additional materials. At the same time SIMs should not be overloaded with too much content or learning tasks to the point of intimidating the learner.

Self-directed

One of the important functions of an effective teacher is to direct the students to acquire the necessary knowledge, skills and attitudes on their own. Similarly, SIMs perform the function of an effective teacher by providing the learners the necessary guidance, hints and suggestions at every stage of their learning process. Learning is directed by presenting the content in a logical sequence, explaining the learning concepts according to the level of the students, providing appropriate learning activities and presenting illustrations to make the content easy to understand.

Self-motivating

Motivation is a pre-requisite to effective learning. SIMs should have potential to arouse, and sustain interest and motivation in students. The content should arouse curiosity, raise problems and relate knowledge with the familiar situation of students so that the students feel motivated and their learning gets reinforced. This type of motivation and reinforcement should be provided at every stage of learning.

Self-learning

SIMs are based on the principles of programmed instruction. The features of programmed instruction such as specification of objectives, breaking the content into small (but manageable) steps, sequencing learning experiences, providing feedback, etc., are incorporated in SIMs. Thus, a systematic approach to learning is followed in the preparation of SIMs. These features of SIMs equip or make the students learn independently. The students devise their own learning strategies and learn on their own.

Self-evaluation

SIMs provide appropriate feedback to the students to ensure optimum learning. They provide information to the students on whether they are progressing in the right direction. Self-check exercises, intext questions, activities and other forms of exercises give the learners the much needed feedback about their progress. Needless to say, feedback on the progress reinforces and motivates them to learn and proceed from one learning point to another. In other words, the knowledge of result gives positive reinforcement to the learners to learn further on.

For development of SIMs with the above characteristic features, there is a need to involve people with specialized knowledge, skills and competencies. It means the distance teachers are expected to possess certain characteristics in order to develop effective SIMs. We shall discuss these characteristics in the next section.

7.4.2 Pre-requisites for Course Writers/Designers

In view of the features discussed in the previous section the teachers involved in developing learning materials for distance learners are expected to possess specialized knowledge, skills and competency. The main pre-requisites of the course writers preparing self-learning material for distance learners are as follows:

Familiarity with the system

The course writers should be fully familiar with the instructional system of the distance education institution concerned, the profile of students of the system and the media approach followed.
Familiarity with the target group

In distance education system the students come from different backgrounds; educational qualifications, experience, socio-economic status, age, etc. They join distance education courses with different linguistic abilities, potential for learning, study habits, pre-requisite knowledge, rural-urban divide and so on. The course writers involved in developing learning materials should be well aware of the needs, requirements and learning habits of the heterogeneous group of the students pursuing their study through distance mode. The learning materials are to be pitched at the right mental level of the students.

Familiarity with syllabus

To develop meaningful and effective learning materials the course writers should have thorough knowledge of the syllabus. Therefore, to claim that the SIMs are self-contained and self-learning the course writers should first analyse the syllabus thoroughly in terms of learning experiences/tasks. Based on their inter-relationships, learning tasks should be arranged in an appropriate order. The writers should know the scope of the content to be covered in a particular course to help the students achieve objectives.

Familiarity with theories of learning

Unlike a classroom-based learners distance learners study independently at their homes or workplaces. The course writers need to use a variety of teaching strategies to enable the students to choose the learning strategy suited to their needs. Adequate knowledge of theories of learning and communication on the part of the course writers will help them creatively design SIMs that suit the individual students. SIMs must be based on a solid foundation of learning theories and teaching norms to ensure optimum learning in the students. The emphasis here is that the principles of writing/developing SIMs are derived from the principles of teaching and learning. Hence, the course writers should have a thorough knowledge of theories of teaching and learning.

Besides, a thorough knowledge of effective communication is also a pre-requisite for those who are involved in developing SIMs for the distance learners. Clarity of content, explanation, language, presentation, etc., will go a long way in ensuring effective communication and meaningful learning by students. Needless to say that distance education, for that matter any teaching, is a process of sharing information, experience, ideas, etc., to achieve the mutually agreed upon (by the sender and the receiver) objectives. Sharing of experience or ideas depends on effective communication between the sender and the receiver of information and/or messages. More so, communication becomes effective if it takes place in the language fully understood by the receiver, meeting his/her needs and requirements.

Check Your Progress

Notes: i) Space is given below for your answer.

ii) Compare your answer with the one given at the end of the unit.

3. State the important features of SIMs.

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7.4.3 Process of Designing SIMs

Designing SIMs is like preparing a blue print of SIMs, which together form a design of a course/programme of distance education institution. Once a course/programme has
been designed, then course preparation follows. We discuss here the main steps or the stages the course designers should follow while designing courses for distance learners.

i) **Need assessment:** The first and foremost step for designing any course is to know the educational needs of the target group. Needs can be assessed through various research tools and techniques. Specially mounted studies can be used to assess the needs. Besides, we can take help of other agencies involved in that particular area of education or development. The felt needs of the target group and the needs unfelt by the target group but perceived by teachers and others will provide the basis for the selection of content to be included in the unit, objectives to be set, illustrations to be used to support discussion, etc. Need assessment would also help us know the characteristics of the target group such as their learning habits, language competence, educational qualifications, socio-economic background, etc. Moreover, need analysis can help in identifying the right kind of course writers, editors, etc. for writing and editing the course(s).

ii) **Defining objectives:** Need assessment will give us ideas about the objectives we have to set for the learners. In other words, need assessment will reveal as to what the target group wants or needs to accomplish through a particular course. Defining objectives is the most important part of the course planning and development, as every subsequent decision will depend on the type and quality of the objectives defined. A well defined objective specifies the information or action that the teachers want the students to learn. Therefore, it is necessary that a well though out decisions are taken while defining the objectives. The objectives should be achievable; the students should be able to achieve them within the specified time and with resources made available to them. The point is that objectives should be realistic to the needs of the target group.

iii) **Identifying and organizing the content:** It is essential to identify the necessary content appropriate to achieve the set objectives. After identifying the contents they need to be organized in view of the objectives. This will provide the broad framework of the contents of the course or a concept map of the overall content.

iv) **Analysing resources and constraints:** We have to take stock of the resources available at the disposal of the institution, that can be mobilized from outside and those possibly available with students as well. These resources should be sufficient to manage all the processes involved in planning, development and transaction of a course/programme. A decision as to which media would be used to deliver which course is to be taken at the planning or designing stage itself. If we have access to more than one medium, we need to think of integrating them in the most appropriate way. Here, the practical involved in a course need thorough consideration. If the course needs residential contact sessions, there is a need to make all possible arrangements for these? Similarly, we have to examine the provisions to be made to provide to the students access to laboratories, workshops, etc., to achieve the course objectives.

v) **Selection of appropriate methods, media and activities:** The next step is to determine how best to present our materials to our students. There can be several ways to present learning points and achieve the objectives. We have to select the most appropriate methods vis-à-vis the objectives set, resource available and media available/accessible. In addition, selection of the appropriate media and methods depend on various other factors such as the learner preference, cost, timing, educational effectiveness and the policy of the institution. Here, you can revisit Unit 6 i.e. Selection of Media and Methods.

vi) **Writing lessons/units:** Preparation of lessons/units is an important stage in designing and development of SIMs. This is discussed in greater details in the section 7.5.

vii) **Evaluation:** Evaluation of all the components of course design is an essential step in the process of course planning and designing. It will help the designer know as to how students will cope up with the SIMs amongst others. Any kind of evaluation at the each stage and at the end of final stage will provide the opportunity to review the plan or design and the SIM prepared.
Check Your Progress

Notes:  
   i) Space is given below for your answer.  
   ii) Compare your answer with the one given at the end of the unit.

4. What are the important steps involved in designing SIMs?

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7.5 PREPARATION OF SIM UNIT

Self-instructional materials are prepared and developed for the purpose of providing programmed instruction to the distance learners. Programmed instruction, in simple words, is the teaching and learning process in which lessons are planned, prepared and produced in advance to provide the opportunity for the learner to have active participation, immediate feedback, success experiences and gradual approximation in the learning process so that he/she can gradually progress according to his/her own pace of learning, ability, interest and convenience with minimum assistance from instructors. Distance education programming is done in the form of independent, but interlinked modules that are called courses. These courses are generally divided into a few blocks. Each block, in turn, contains a few units. Being a second year student of B.Ed programme you must be now clear about what a programme, course, block and unit mean. Even in technologically developed countries it is print, which is used as the master medium of teaching and learning in distance education. Considering the importance/popularity of print medium the emphasis in this section is on the print medium. The process of writing/preparing and developing SIMs discussed here, however, will be useful even in preparing SIMs in non-print media. Since a unit forms a basic part of a block of any course, the focus, here is on the process of preparing an SIM unit.

The process of preparation of SIM unit can be conveniently divided into three stages. They are:

   i) Arranging topics/concept mapping;
   ii) Preparing unit structure; and
   iii) Writing the unit.

Let us now discuss each of them.

7.5.1 Arranging Topics (Concept Mapping)

The first and the foremost task in writing learning materials is to select topics or identify all the relevant concepts and learning activities and arrange them in the most possible logical sequence. The topics, the concepts and the learning objectives are interrelated. A topic tells us what the subject and point of the presentation is, and the topic may have many concepts. The objectives of the unit determine the depth and extent of coverage of topics and concepts and vice-versa.
Identifying and arranging topics provide the writer the 'concept mapping' of the unit contents. The concept mapping is a process in which the unit writer identifies key concepts and sub-concepts in a body of subject matter and arrange them meaningfully around the focal point. A typical concept map contains three elements:

i) Concept i.e. perceived regularity in events

ii) Proposition i.e. linking words between concepts. This shows the relationship between different concepts and even propositions

iii) Hierarchical structure i.e. there is a hierarchy in the way events take place.

The students' pre-knowledge and the nature of the content forms the basis for arranging topics and concepts. In other words, the sequencing of content is learner and learning oriented. It reflects on the resourcefulness and creativity of the unit designer and the unit writer. The principles of teaching and learning are followed from the very beginning of course development. In any learning, there are certain skills to be mastered or certain information to be learnt before the student moves on to the next stage. It is, therefore, essential to decide upon the order of topics, concepts and the relevant information, skills, etc. The unit writer, wherever and whenever necessary, can seek advice in several ways from the advisory committee, subject experts, instructional designers, educational technologists and other.

7.5.2 Preparing Unit Structure

In distance education a unit describes a unified theme of knowledge. Different topics are covered in each unit. As mentioned earlier, each unit is self-contained. To make learning materials more accessible and self-instructional, we present the unit structure in the beginning of every unit. The unit structure, as you have seen in many blocks, helps the student understand what constitutes the unit. The unit structure helps the student not only to have easy access to the desired learning point in the unit but also to skip or skim the point according to his/her needs and requirements. The unit structure presents a clear outline of how the content or the learning activities are conceptualized and presented by the course writer. The unit structure with clearly differentiated and logically arranged learning activities makes the text more learner-oriented. Each learning activity is given or allotted a serial number. Care is taken that numbering is simple and clear, and makes the learning activities more accessible. A typical unit structure, in general, includes the following:

X Unit title

Unit Structure
X.0 Introduction
X.1 Objectives
X.2 (Main topic 1)
    X.2.1 .......Sub-topic 1
    X.2.2 .......Sub-topic 2
    X.2.n .......Sub-topic n
X.3 (Main topic 2)
Xn (Main topic n)
X.(n+1) Summary
X.(n+2) Answers to Check Your Progress

'X' stands for number of the unit and 'n' stands for the n\textsuperscript{th} topic or sub-topic or parts as they are arranged. Here, you can pause a while and take a look at a few unit structures available in this Block and in other Blocks of this course or other courses.

References and Suggested Readings, as usual, are given towards the end of the unit.
7.5.3 Writing the Unit

Since there are many ways of teaching and learning, there can be various formats/styles of presenting SIMs. The course writers, therefore, should know various ways of presenting learning activities.

There are three main parts of a unit – the beginning of the unit, the main body and the ending of the unit. Let us discuss each part, in brief, here. You will know more about these parts vis-a-vis editing them in section 8.4 of Unit 8 of this Block.

i) **Beginning of the Unit:** This part of the unit usually includes the following access devices:

a) **Unit Structure:** Every unit begins with the unit structure or the contents list. Being pedagogically more meaningful the expression 'structure' is preferred than the contents list. This device has already been discussed in this unit.

b) **Introduction of the Unit:** The main purpose of an introductory section is to introduce to the students what they will be studying in the unit. Like an effective classroom teacher, the introductory section of a unit provides necessary guidance to the student to facilitate his learning. There can be several ways of writing the introduction of a unit. There are generally three components of an introduction.

i) Structural component i.e., linking the content of the unit with what has already been discussed or what the learner has already studied. In other words, the introduction should be based on the pre-requisite or prior knowledge of the students.

ii) Thematic component i.e., presenting and highlighting in a very friendly and personalized style an overview of what is being dealt in the unit.

iii) Guidance component i.e., providing necessary instruction (related to the content of the unit) to facilitate learning

A resourceful course writer provides guidance about what a student is supposed to do before he starts reading the unit. Guidance can be given with reference to time, special activities, equipment, books etc., needed for the unit and instruction. You will study more about this in Unit 8.

c) **Objectives:** Defining objectives in terms of learning outcomes is useful for both the course writer and the students. Well defined objectives, in terms of learning outcomes, help in planning, evaluating and revising any learning activity until the desired outcomes are achieved. There can be three domains of objectives: knowledge, psychomotor and affective. Even within each domain the objectives can be set at lower or higher levels. The number and the level of the objectives should be according to the mental level of the students, and they should be achievable. Moreover, we need to ensure that the objectives set for the unit/students are measurable. Considering the features of distance education, we have to devise ways and means to assess the accomplishment of objectives. It implies that we should be realistic in setting objectives for a unit. Sometimes, objectives are placed before the introduction, as you have noticed in the case of certain courses of IGNOU.

ii) **Main body of the unit:** This part of the unit includes the presentation of learning activities/content to be learnt by the learners. We should decide on how much of the materials/learning activities we would be including in the unit. It would be appealing if the content is aimed at achieving the objectives. It is always good if the content is divided into small but manageable learning steps or sections. Each section should present at least one new point, and exercises related to that/those points. As you have seen these sections are further divided into sub-sections. Each section and sub-section is given a suitable title and, wherever necessary, a serial number. The title should be easy to recall or remember, and should communicate the essence of what is discussed. The title should reflect on objectives. The main body of the unit will have the following broad features.

a) **Logical arrangement of learning points:** The learning steps are logically arranged so that the learner proceeds from one learning step to another. And there should not be any abrupt gap or break between two steps. In other words, there should be a smooth transition from one learning point to another. The logical arrangement of
content will ensure linkage between/among learning points. There can be linear and/or branching approaches to arrange learning events. In the unit structure also there should be a display continuity and consistency of learning events.

b) **Ordering of content:** The learning activities are arranged along the principles of teaching and learning. The principles of effective teaching proceed from the known to the unknown, from the simple to the complex, from the concrete to the abstract, from the particular to the general, from actual to the representative, and so on, are followed in writing a unit. Such an order of learning activities will have a logical flow and will create continuity of the desired focus.

c) **Personalized style:** The course writer should be sympathetic and generous in discussing the content adequately. The student should feel as if he is talking to the invisible distance teacher. The content should be discussed in a conversational style and we should address the student directly in a friendly, informal tone. Our discussion should establish an emotional link with students through varying styles of presentation of the content. Efforts should be made to link the content with the students' life experience keeping in view the need for variety and change of pace to sustain the interest of students. At this point, you may recall the principles of preparing self-instructional materials such as self-directed, self-contained, self-explained, etc. Here, we should think of using more than one means of communication.

d) **Language:** The quality of language is decisive factor in assuring the quality of SIMs. The language used should be warm, friendly and, above all, grammatically correct. Long, unfamiliar and double negative words should be avoided, unless they are demanded by the text. Language should attract the students to read the text, involve them in the discourse and interact with the text. Personal pronouns such as ‘You’, ‘I’ and ‘We’ should be used frequently.

e) **Illustrations:** The insertion of illustrations, diagrams, charts, examples, etc., is an important feature of SIMs. Illustrations create interest in the students, stimulate their imagination, increase their comprehension and help them retain the knowledge. Illustrations make the abstract concepts concrete. There is no definite formula to decide the number of illustrations/diagrams in a unit. It depends on the nature and difficulty level of the concepts being taught/learnt. Remember, simplicity and clarity of illustrations are the guiding principles of effective communication. Illustrations linked with real life experience will make the unit more lively and interesting.

f) **Assessment:** Assessment helps in monitoring whether the student is moving towards the set objectives or not. Therefore, each step should be followed by an assessment item. Assessment also helps the students learn better and provides them feedback about their progress (self-assessment). Besides, while the students work on assignment question it (assessment) initiates a dialogue (pedagogic interaction), breaks the feeling of isolation among students and reinforces their learning.

iii) **Ending of the unit:** This is the last part of unit where the important learning points discussed in the main body of the unit are summarized, in brief. Summary helps learners recall the gist of the discussion and reinforces their learning. Thus, this component is a sort of recapitulation of the main learning points. It reminds the students of all the activities/tasks completed or learnt by them in the unit. This part contains besides summary, glossary, suggested readings, answers to self-check exercises/check your progress questions and references.

a) **Summary:** The summary of the unit can be presented in a variety of ways/forms. It can be in paragraphs, points, charts, tree diagrams, etc. The summary section should be comprehensive enough to provide proper feedback to the students and also to get our messages across.

b) **Glossary:** The crucial, key, new and technical words are better explained to the students to enhance their comprehension. The words with multiple-meanings need to be defined with proper explanation. This leads to better understanding of the working definition of the terms, particularly the most crucial ones.

c) **References and suggested readings:** A list of references and suggested readings is presented to help those students who want to know more about the content of the particular unit(s) or topic(s). The course writer, however, ensure that the readings
particularly are useful, relatively cheaper and easily available in the market. We can even suggest books as essential or optional or helpful in doing the assignment responses and/or term-end examinations. There should be complete information about the book(s) such as author, year of publication, title, publisher, place of publication and relevant chapter(s)/page(s).

d) **Answer to self-check questions**: The answers to the self-check questions, given in the text at the end of sections, are provided at the end of the block or unit. These answers provide feedback to the students. These answers can be given in different ways, such as hints, full-answers, model answers, etc., depending upon the type and nature of self-check questions. The answers should be clear and comprehensive. Also, these should be in consonance with the number of words, number of lines, etc. prescribed under the respective questions. Further, these answers should be clear in terms of language, explanation offered, etc. The answers should, however, be based on what has been discussed in the unit.

### 7.6 LET US SUM UP

In this unit we have presented the concept, need, key features and process of designing and preparing SIMs. Certain features of SIMs such as self-explanatory, self-contained, self-directed, etc., have been discussed adequately to show as to how SIMs can perform the functions of an effective classroom teacher. The pre-requisites of writers of such SIMs have also been highlighted. These pre-requisites will help in identifying appropriate course writers. Two main components of SIMs — Learning activeness and access devices — have been discussed with a view to highlighting their importance in a self-instructional unit. We have also discussed the steps to be followed in course planning, designing and preparation of SIM unit alongside its three essential components/parts.

### 7.7 ANSWERS TO CHECK YOUR PROGRESS

1. SIMs are the specially designed and developed instructional materials to meet the needs, interests and problems of distance learners. In these materials the distance teacher performs, through media and technology, the roles and functions of a classroom teacher who does them mostly through oral medium. In these materials the instruction is well programmed with a view to providing an opportunity to the learners to effectively participative, get immediate feedback and gain success experiences. The SIMs enable the learners to learn according to their own pace of learning, interest, ability and convenience with minimum assistance from the distance teacher/instructor/institution. The SIMs are essential for distance education because they address many problems that may arise in the process of isolate learning of individual distance learners.

   The SIMs are essential for distance education because they address many problems that may arise in the process of isolate learning of individual distance learners.

2. The access devices that are generally present in the SIMs include: i) title of the unit, ii) structure of the unit, iii) objectives, iv) illustrations, v) summary, and vi) glossary.

3. The important features of SIMs are that they are self-contained, self-explanatory, self-directed, self-motivating, facilitating, self-learning and self-evaluation.

4. The steps involved in designing SIMs are: i) Need assessment, ii) Defining objectives, iii) Identifying and organizing the content, iv) Identifying and analyzing resources and constraints, v) Selection of appropriated media, methods and activities, vi) Writing lessons/SIMs unit, and vii) Evaluation.