

Self-Learning Material

UNIT

1

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Introduction

Learning at a distance is not a new concept for most of us. It is known by several names, such as home study, postal tuition, correspondence courses, independent study, off-campus study, external study, non-formal education, etc. At this stage, you may recall what you have studied in Block 1 of this course. Distance education is supported by communication technology and based on sound principles of instructional design. It is when openness is built into it in forms of both removal of constraints to access and learning as well as provision of learner choice of/control on self-learning, we call it open distance learning (ODL). Institutions offering courses through the distance mode are variously known as open institutions/universities, directorate of distance education, tele-university, university of the air, e-learning institutions, virtual universities, etc.

The use of various media is an integral part of the ODL system. Media and technology are used both as carriers of educational information and as instruments to bridge the distance between the teacher and the learners (and amongst learners). The learners pursue their studies independently with minimum external support. Self-learning materials are designed and developed keeping this requirement of the distance learners in mind.

In this Unit we shall discuss the concept, features and principles of writing self-learning materials. We shall also discuss the process of designing and developing self-learning materials. You will study more on the process of learning from self-learning materials in Unit 1/Block 3 of this Course. You are therefore advised to read these two units together so that you are able to understand the concept and use of self-learning materials more meaningfully. We hope that the knowledge and skills acquired in this unit will help you prepare self-learning materials for your students.



Learning outcomes

The unit is aimed at helping you develop skills of writing self-learning materials. After going through this unit you should be able to:

- analyse the concept and features of self-learning materials;
- explain the principles of developing SLMs;
- describe the process of writing SLMs; and
- design and develop SLMs for your students.

Self-learning materials: the concept

The success and effectiveness of the ODL system largely depends on self-learning materials (SLMs). Developing SLMs is a challenging task, and is quite different from that of face-to-face teaching or writing a textbook and/or journal article. It is pertinent for you to understand the concept of self-learning materials which are based on the principles of use of the means and ways of communication.

Concept of learning at a distance

As you have studied in the preceding block, the distance learners pursue their study on their own for they are away from their teachers, institution, and fellow learners. They learn independently with minimum external support from teachers and peers. Moreover, a majority of the distance learners is usually adults; and they need learning materials, which facilitate their independent learning. Normally they are motivated enough and also possess certain study skills which enable them to pursue their study independently and at their own pace.

As you know, in the ODL system the scope for personal contact with the learners is limited. Most learning takes place not through the mediation of a teacher but primarily through the mediation of the learning materials. Therefore, learning at a distance demands study skills on the part of the learners to enable them to gain optimally from the learning materials. Usually learning at a distance takes place and gets reinforced by:

- interacting with learning materials;
- receiving feedback on various academic activities, such as assignment responses, project work, term-end examinations, etc.;
- attending personal contact / communication during counseling sessions and tutorials;
- using multiple media and multimedia components (cassettes, broadcast, interactive CD-ROMs, teleconference, internet, etc.);
- participating in face-to-face academic activities (seminars, counseling sessions, tutorials, laboratory work, etc.).

Self-learning materials (SLMs) perform the functions of an effective classroom teacher by providing learning experiences similar to the classroom-based teaching-learning process. Thus, the invisible teacher built in the learning materials facilitates the learners in their studies in the same way as the classroom teacher does within the face-to-face classes.

Instructional design versus learning

Instructional design is a process comprising analysis of learning needs and goals and the development of a delivery system to meet these needs. It is concerned with research about instructional strategies and the processes for developing and implementing those strategies. It is the science of creating strategies for development, implementation, evaluation, and maintenance of environment/ situations that can facilitate learning. Instructional design involves systematic development of instructional specifications using learning and instructional theory to ensure quality teaching and learning. SLMs are based on instructional design involving analysis of learning needs, development of learning materials, and placement of a delivery system and the mechanism of assessment to know whether the learners have achieved the course objectives. The quality of instructional design has a direct link with learning on the part of learners. The more innovative an instructional design is the more effective and learner-oriented the SLM shall be. This is so because there is a direct link between quality of instructional design and learning.

Let us now examine this relationship between instructional design and learning, and hence the implications of instructional design for developing effective self-learning materials. In the conventional system of education, the learners get most of their instruction through the face-to-face interaction with the teacher and the peer groups. But, the learners pursuing their study

Self-contained

Efforts are made to make the text self-sufficient so that a learner does not hunt for the additional sources, or even a teacher. For this the scope of the content of the unit is visualized in detail. While avoiding what is redundant only the essential details are presented so that the unit can cover information required by the learners and keep away all that is superfluous or redundant.

Self-explanatory

The content is presented in a style so that a learner can learn from the material without much external support. The concepts are explained to the extent such that majority of the learners are able to comprehend them. Therefore the content is self-explanatory and conceptually clear. To make concepts self-explanatory the content is analyzed and presented logically considering the mental and lingual background of the learners/ target group. A few may not be able to comprehend the contents fully and may therefore need additional help and guidance by teachers through correspondence and at study centre tutorials.

Self-directed

The learning materials aim at providing necessary guidance, hints and suggestions to the learners at each stage of learning. The self-directed material is presented in the form of easy explanations, sequential development, illustrations, learning activities, etc., thus performing the role of a teacher who for instance guide, instruct, moderate and regulate the learning process in classroom situations.

Self-motivating

In distance education systems, the learners remain off the campus for most of their study time. The study materials, like a teacher in the classroom, should be highly encouraging for the learners. The materials should arouse curiosity, raise problems, relate knowledge to familiar situations and make the entire learning meaningful for them, providing reinforcement and feedback at every stage of learning.

Self-evaluating

As the learners remain separated from the distance learning institution as well as the teachers, the study materials should make provisions for feedback as well. To ensure optimum learning, the learners should know whether they are on the right track. Self-evaluation in the form of self check questions, exercises, activities, etc. provides the learners with the much needed feedback about their progress, reinforces learning, and motivates them for self-learning. The course writer should develop a built-in evaluation system by giving an appropriate number of self-check exercises, activities and questions in the course units.

Self-learning

Self-instructional materials are based on the principles of self-learning. So, a unit, besides information, provides the learners study guide - directions, hints, references, etc. to facilitate their independent learning. To make the content comprehensible, it is supported by simple explanations, examples, illustrations, activities and so on. In other words, the materials are designed and developed in such a way that the learners can undertake learning by oneself with occasional help from others including the teachers.

Features of self-learning materials

Besides the characteristics mentioned above, the following are additional features of self-learning materials (see Table 1.1):

Table 1.1: Features of SLMs

Features	Explanations
Individual learning	No need to wait for the group
Self-paced	Work at own pace
Private learning	No loss of face as in group learning
Any time	No external timetable
Any number	Own home or workplace
Standardized	Same materials for all learners
Expert content	Written by national and international experts
Updatable content	Can be updated quicker and cheaper than teachers
Structured teaching	Most efficient and effective teaching strategy
Active Learning	Learn by using ideas, rather than being told
Frequent feedback	Continuous feedback to monitor and improve own process

Comparison of textbooks with self-learning materials

Developing self-materials is different from writing for textbooks or journals. The differences between the two are presented in Table 1.2.

Table 1.2: Textbook versus SLM

Textbook	Self-learning material
Assumes interest	Arouses interest
Written for teacher use	Written for learner use
No indication of study time	Gives estimates of study time
Designed for a wide market	Designed for a particular audience
Rarely states aims and objectives	Always gives aims and objectives
Little or no self-assessment	Major emphasis on self-assessment
Seldom anticipates difficulties	Alert to potential difficulties
Occasionally offers summaries	Always offers summaries
Impersonalized style	Personalized style
Dense content	Content unpacked
Dense layout	Open layout
Learner/reader evaluation rare	Learner evaluation always conducted
No study skills advice	Provides study skills advice
Can be read passively	Requires active responding
Aims at scholarly presentation	Aims at successful teaching-learning

Principles of writing self-learning materials

Preparation of self-learning materials depends on the synthesis of the theories of learning and the

theories of communication. Learning theory is concerned with the process of acquiring knowledge, skills, and behaviour. Communication theories, as applied to education, with the forms and means of interaction between learners and teachers, guide us to make the presentation of content or discussion more interactive. As you may aware, instruction involves gaining and controlling attention, stimulating recall, facilitating learning, providing feedback, arranging for remembering, and assessing outcomes; we should therefore keep the following pedagogical points in mind while designing the self-learning materials:

Drawing and maintaining attention

In order to facilitate learning of the learners, we have to attract and sustain their attention on what is being discussed. Many of the stimulation conditions that can attract attention are popular among learners. These include change, novelty, and attractiveness of the stimulus. Maintaining attention is a matter of achieving a set related to individual goals, which motivate the learners read the text attentively.

Ensuring recall of previously acquired knowledge

We have seen that recall of prior knowledge is considered an essential condition of learning. When the learner reads something new, he/she must first be association with what he/she already knows so as to comprehend the concepts of the unit being studied. This, according to Piaget, helps in the assimilation of the learned content.

Guiding learning

This is done by verbal or pictorial material that provides 'clues or hints' to new principles. In part, advance organizers presented at the beginning/introduction stage perform this instructional function of guiding the learners.

Providing feedback

The learner needs feedback on his/her accomplishments. One of the surest ways of doing this is by defining the objectives of instruction clearly to the learners so that they become fully aware what they have attained. The learners should know, while studying the unit, whether they are on the right track. Various provisions of providing feedback such as self-check questions/exercises, assignments, academic counseling, tutorials etc can be thought of.

Establishing conditions

Effective SLMs provide situations to remember and transfer of learning as one of the essential functions of instruction. We need to carefully include a series of problems to develop the skills of transfer of learning. This is the process in which new ideas are compared and contrasted to relate one's previously learned ideas. For remembering, we need to provide for spaced review, which has often shown to be an effective technique.

Assessing outcomes

The outcomes of learning need to be assessed frequently. The skilled learner can often perform this function with some success. But to test oneself is indeed a sophisticated thing to do, and instructional material should provide as much help as possible in this function.

Asking appropriate questions

By working questions/exercises, the learners come to grips with the content. Besides, the questions set in the 'self-check exercises' and/or activities take the learners through various stages of reading comprehension. That is, some exercises or activities require the learners to infer ideas from the text and others demand the learners' reaction to what is presented in the text. The uses of questions that elicit high-level comprehension responses are important study strategies. The questions are presented at crucial junctures, primarily for developing the skill of questioning the text, and comprehending the learning points. The in-text questions, which are usually incorporated within the texts of self-learning materials, direct the learners to derive ways to solve problems, and to find analogies between certain problems/views. They help to analyze, synthesize and evaluate the learning materials. In self-learning materials, the questions are either presented in the body of the text itself or presented at the end of the unit so that the learners can reflect on what they have learnt in the unit. If a learner attempts these questions seriously and honestly, his/her learning improves considerably.

Providing nonverbal aids

Illustrations, diagrams, charts, tables, etc. play a vital role in making self-learning materials effective. Such non-verbal aids are effective, when it comes to registering information. However, non-verbal items should not be looked upon as an alternative technique of presenting knowledge, and therefore they are not a substitute for written exposition. They are complementary or supplementary aids to the interpretation of verbal representations. The use of non-verbal aids helps learners comprehend learning concepts and develops the skill of transfer of learning.

Presenting glossary

Glossaries are provided wherever necessary to ensure better comprehension of learning points on the part of learners. In self-learning materials, 'glossaries' either precede the reading passage with the aim of preparing the learner before hand for his/her encounter with possible problems in the passage, or appear as explanations to particular problems as the learner actually encounters them in the context. Glossaries may appear at the end of the text also; in such a case, they may be called 'reference glossaries'. We need not discuss which of these are more effective – their effectiveness primarily depends on the learning style of the learners. The glossary will help the learners comprehend the concept discussed in the text. It refreshes and clarifies the learners' comprehension. The glossary may contain working definitions of all the crucial/key, terms, concepts or expressions introduced in a unit.

Using advance organizer

Advance organizers, i.e. information given to learners in advance provides educational scaffolding for the retention of the material that follows in their coming lesson. Self-learning materials shun the idea of compartmentalization of units or lessons. Each unit usually contains a brief introduction, which, presents an overview on what the learners have already learnt/studied (i.e. pre-knowledge) in the previous unit(s), introduces the new learning points/experiences to the learners. This helps in establishing a bridge between what the learner knows and what he/she is going to learn. Such links, in turn, help in building coherence more economically.

Summarizing

'Sum up' is presented at the end of each unit to help the learners integrate what they have studied.

confronted with a specific question as to what design can be used to achieve the already determined objectives. What does the distance learner need to learn? This unit deals with the above question. It aims at helping you to design effective self-learning materials for your students. The term 'design' as used in this context, and as it applies at the micro level, refers to the plan, structure and strategy of instruction used or conceived to produce learning experiences that lead to the achievement of pre-specified learning goals. The design of a unit is something abstract. We know it only by experiencing it. It first exists as a concept in the mind of the designer, and is then given a concrete shape when the units are written or developed. The design directs us to present learning experiences in such a way that have optimum impact on the learners.

In a classroom situation, the interaction between the teacher and the learners takes place through verbal communication; but, in distance education, the learning material facilitates interaction between them. In other words, the self-learning material creates simulated situation in which the learner interacts with the learning input and feels as if an invisible teacher directs him/her through the material. The material should be self-motivating, self-learning, self-directing and self-evaluating in nature so that the distance learner is able to learn the concepts independently without the support of the teacher. For this, we are supposed to have following pre-requisites:

- concept of learning at a distance
- understanding socio-educational background of the learners
- structure or procedure of writing SLM
- mastery over the content
- knowledge about the methods to transact content.

Once we possess the above mentioned pre-requisites, we can start writing SLMs. To understand the process of developing self-learning materials we can divide a self-learning unit into two parts. They are:

- Access devices
- Transaction of content

Let us discuss both the parts vis-à-vis the development of SLMs.

Access devices

Access devices help both the course developer/writer go as close to his/her learners as possibly he/she can, and the learners come as close to the content as they can. These also help the learners find their way into the text. The main functions of access devices are as follows:

- The access devices help the learners to reach as close to the content as possible.
- They make the content more intimate to the learners
- They provide substitute to a live teacher.
- They create the curiosity in the learners towards the learning text.

The main access devices are as follows:

Title of unit

Appropriate title of the unit gives clear idea about the content of the unit. We therefore should be specific about the title of the unit. For example, the title of the unit 'Teacher Education in India' may not be enough to be understood clearly by the learner since this is too broad a title. It should be more specific, such as 'Growth of Teacher Education in the Post-Independent India'.

Structure of a unit

The structure provides the road map of the unit as it contains main sections, sub-sections and sub-sub-sections of the content. The structure of the unit shows what the students are expected to learn in order to meet the objectives. This can be presented in a diagram showing the relationship between sections/sub-sections. The structure draws attention of the learners' towards the subject matter. The structure also displays the way learning inputs/experiences have been organized and sequenced.

The structure of the unit provides a framework of the content that helps learners assimilate new information and ideas into their own cognitive structures. It makes the materials more accessible for the distance learners. The structure of the unit contains list of learning points from the beginning to end of the unit. Thus, the 'structure' of a unit is a detailed itemization of the content broken into sections and sub-sections, and arranged in a logical order. It helps learners overview the text and locate relevant points efficiently. It also helps the learners in accessing the desired content of the unit. They need not go through the whole unit and can refer to the learning point as per the need. The structure with the help of clearly differentiated and logically arranged sections and sub-sections, makes the text more learner-oriented. It also helps the prospective course writers in deciding the best arrangement of the content.

The whole content should be divided into sections and sub-sections for easy access to the learning points and better comprehension. To draw the attention of the learners and distinguish between them, sections and sub-sections are made bold and presented in different size of letters. This arrangement makes it easy for the learners to know the main learning points discussed in the unit. We develop our own style of arranging sections and sub-sections. This is known as in-house style, which is usually followed across the units of the course/programme.

The systematic processes of the design of unit structure is follows:

- The sections and sub-sections of a unit should be numbered and this numbering can be done in various ways. The numbering however should be simple and clear to make content more accessible. (You may notice that the units that you are going through have not been numbered: instead, the headings and sub-heading have been expressed in different fonts and in different sizes.)
- Similarly, sub-sections under a section of the unit, should be given a serial number.
- The title of the sections and sub-sections should be clear, precise, relevant and communicative of the content being discussed.
- The numbering should not make the structure of the unit too complicated and confusing. If you want to be more specific with regards to content you can highlight important or crucial learning points with the help of **bold**, *italic*, varying font sizes, etc.

the learning material. In the introductory section we should describe the components of the unit and provide guidance as how to study the unit. Each unit should, therefore have a clear organization of content based on concept mapping, so that the learner can gain maximum from the unit. Necessary guidance in this regard may be given to the learner. To motivate the students for active involvement in learning we can give some activities or something practical to do right at the beginning of the unit if we need to because the introductory part covers the entire unit and establishes links with previous units, it may actually be written after the unit is completed. To get most out of it, also we should focus our discussion on the time limit, activities, back/cross references, equipments, books, etc. is the major component which helps strengthen the study.

Objectives

The objectives are more specific, setting out what students should be able to do, understand and behave after completing their course. Though there are differences, between learning outcomes and objectives, they are used inter-changeably. The objectives define the scope of the content covered in the unit and the learning outcomes to be achieved. Objectives, stated in each unit, help the learners set the learning outcomes for themselves in the process of learning the concept. The objectives represent what is expected from the learners after going through the materials. In other words, the objectives define what the learner will be able to do or behave on completing the unit. At the same time the objectives decide the scope of the content to be included in a particular unit/course.

Each objective comprises three elements: (i) direction, (ii) planned change, and (iii) activity. Due to objectives all the learning activities are managed towards a definite direction. Defining objectives is to identify the terminal outcomes of the learning process in terms of observable performance of the learners. These outcomes are presented in behavioural terms or action verbs. The learning objectives can be defined at cognitive, affective and psychomotor levels.

Here you may have a question in your mind as to why the objectives are stated in behavioural terms. The following points may help resolve your query:

- Behavioral objectives help in deciding the scope of the learning content, activities, illustrations, examples etc.
- These objectives reflect on the characteristics of learning experiences and the assessment process.
- They help in selecting appropriate questions for testing the learners' performance at different levels.
- They enable the learners to know as to what they must learn or achieve in a particular unit so that they may plan their study schedule or adopt learning strategy accordingly.
- They help in determining strategies of teaching and learning.

While stating objectives in behavioural terms we should use action verbs so that the change in learners' behaviour is assessed/observed through empirical evidences. Various action verbs are being used for defining learning outcomes. See Table 1.3 for cognitive domain and Table 1.4 for psychomotor and affective domains.

Table 1.3: Action verbs: cognitive domain

S. No	Objectives	Action Verbs
1.	Knowledge	Arrange, Copy, Define, Duplicate, Label, List, Match, Memorize, Name, Order, Quote, Recognize, Recall, Record, Repeat, Reproduce, Tell, Underline, Compose, Create, Design, Devise, Formulate.
2.	Comprehension	Classify, Convert, Describe, Discuss, Explain, Express, Extend, Identify, Indicate, Locate, Outline, Recognize, Relate, Report, Respond, Restate, Review, Rewrite, Select, Translate, Originate, Plan, Prepare, Propose, Set-up, Write.
3.	Application	Apply, Assemble, Change, Choose, Defend, Demonstrate, Discover, Dramatize, Draw, Employ, Extend, Illustrate, Interpret, Manipulate, Modify, Operate, Practice, Predict, Prepare, Produce, Show, Solve, Use, Perform, Estimate, Evaluate.
4.	Analysis	Analyze, Appraise, Calculate, Categorize, Compare, Contrast, Criticize, Diagram, Differentiate, Distinguish, Examine, Experiment, Explain, Illustrate, Question, Test.
5.	Synthesis	Arrange, Assemble, Collect, Combine, Manage, Manipulate, Modify, And Organize.
6.	Evaluation	Appraise, Argue, Assess, Attach, Choose, Compare, Conclude, Defend, Judge, Justify, Predict, Rate, Score, Select, Support, Value.

Source: Thompson, 2003.

Table 1.4: Action verbs: psychomotor and affective domains

Psychomotor Domain	Affective Domain
Adapt, Adjust, Assemble, Bend, Build, Calibrate, Close, Combine, Construct, Copy, Design, Diagram, Disconnect, Draw, Duplicate, Fix, Generate, Grasp, Handle, Hear, Identify, Illustrate, Load, Locate, Loosen, Manipulate, Measure, Modify, Move, Operate, Perform, Pick-up, Point to, Practice, Press, Pull, Push, Remove, Repair, Replace, Rotate, See, Select, Service, Set-up, Shorten, Show, Slide, Sort, Stretch, Touch, Transport, Write.	Accept, Attempt, Ask, Challenge, Change, Commend, Comply, Conform, Defend, Describe, Discuss, Display, Dispute, Follow, Form, Initiate, Integrate, and Join, Judge.

Source: Thompson, 2003

End of the unit

This is the last part of the unit. It comprises of the following access devices.

Summary: In the last section of each unit, we summarize the main learning points discussed in the unit so that the learners can recapitulate them. The summary presents a brief overview of what has been discussed in the unit. The important points based on the objectives of the unit are summarized. The summary of the unit will help the learner recapitulate the learning points discussed in the unit. The summary of the unit also helps the learner to know if he/she has missed any learning point. The statement of the important learning points will also help them retain whatever

they have read in the unit. It will also provide feedback to the learners. The summary of the unit motivates the learners for further learning. A unit may be summarized in several forms, such as in the form of a checklist, list of key points, tree diagram, etc.

Glossary: The end of the unit also includes glossary, answers to self-check questions, references and unit-end activities. These features have already been discussed in the unit. Key words, terms, expressions, technical expressions etc. used in the unit are glossed to help the learner understand the concepts in the proper context. We should remember that without understanding the meaning of crucial terms the learner couldn't comprehend learning concepts. Moreover, every discipline has its own language. More on aspects, other than glossary, is given as follows.

Answers to self-check questions: To provide feedback to the learners, hints/full answers or model answers may be given at the end of the unit. The answers should be clear in terms of language and explanation. We should remember that the answers should be based on what is discussed in the unit. The answers should match with the questions in terms of number of lines, words, concepts, etc. asked.

References: Suggestive readings and references can be given at the end of the unit. They provide for additional information to those who want to know more about the learning point. We should however ensure that the books and other materials suggested should be easily available at a cheaper rate. Complete information such as author, year of publication, title, publisher, place of publication, chapter pages, etc. should be given.

Unit-end activities: Unit-end activities will help the learners to transfer learning/knowledge to the new situation. These activities could be reflective in nature, i.e. reflecting on what has been discussed in the unit. The learners, based on what they have studied, will be able to apply their knowledge to solve problems.

The presentation of each unit should match with that of other units across the course/programme. Any change in structure or style may confuse the learners. The in-house style can provide flexibility to unit writers to discuss the learning points creatively. We should remember that the in-house style should not be ritualistic. If you examine the study materials given to you, you will find quite similar processes followed in writing the materials. There are various ways of presentation of content. We have here discussed the generic structure of a self-learning material.

Transaction of content: main body of the unit

The actual teaching-learning process through SLM starts at this stage. This is known as the main body of a self-learning unit. As already mentioned, the content is divided into sections and sub-sections or sub-themes. These sections and sub-sections are arranged in a logical sequence based on the teaching norms. There are many ways of presenting the content in a self-learning form. The main thrust is on the way the learners easily grasp the content. Clear and consistent organization of content helps them to access content according to their need.

Through the sections and sub-sections, we present the learning experiences systematically, sequentially and logically. In order to know their progress we present self-check questions, exercises and activities for the learners to work on. Thus, sections and sub-sections are followed up by self-assessment questions. The questions, exercises and activities normally consist of a sequence of the presented text. All the above components constitute the body of the unit.

Concept mapping

The content of the unit as a whole should be planned/conceptualized before we start writing. Working out the detailed structure and finalization of tentative framework for the unit is termed as

'concept-mapping'. It suggests the most effective way of arranging the learning points. It also helps the course writers to link different sections and sub-sections of the unit. Concept maps harness the power of our vision to understand complex information 'at a glance'. In other words, the concept map presents a holistic view of all the learning points of a unit. For this you have to take care of the following points:

- Knowledge of the curriculum and subject matter.
- Knowledge of the unit formation with appropriate measurement.
- Proper distribution of time.
- Suitable sequence to suit the nature of content and teaching norms.
- Process of effecting learning.

ACTIVITY 4



Why is concept mapping necessary for writing self-learning materials? Explain with suitable explanations in about 100 words.

Content analysis

The content should be presented in small steps. It should be divided into small but manageable learning points. Each learning point should have organic link with the other so that learner moves from one point to another point and achieves the course/unit objectives. We should ensure that all the necessary inputs/experiences are included in the unit.

Content organization

This is also an important point, which we have to take care while preparing self-learning materials. The content should be presented in a sequential and logical manner so that the learners can proceed from one learning step to another. The logical arrangement will maintain both the continuity and consistency of the content. In order to maintain these we should conform to the structure of the unit strictly. We should follow teaching norms like from 'known to unknown', 'concrete to abstract',

'particular to general', 'simple to complex', 'actual to representative', etc. There are various ways of arranging content. But every sequence of the concepts should be judged from learners' point of view. The content should enrich various activities or experiments related to the unit. This may help learners to develop and sustain motivation in learning the material.

Objective-based activities

Since the objectives indicate the change in the learner's behaviour after going through the learning materials, each objective should be matched by an activity to enable the learner to demonstrate to him/herself and to his/her teacher that the objectives have been achieved. If one of the objective of a lesson is that the learners should be able to solve simultaneous – equations, there must be an exercise asking him/her to do this; If an objective is that learner should take notes in an organized fashion, there should be exercise (s) on note taking. One way to make a quick, initial, assessment of the quality of a lesson is to look first at the objectives and activities to see if they match. Here we want to elaborate that the teaching-learning process in distance education should be based on the objectives to be accomplished.

Comprehensibility

We should consider whether the content fits with the objectives and whether the examples/illustrations are appropriate to both the content being transacted and the learners. We should also check whether the presentation is thorough in taking the learner step by step, and that the exercises reinforce each learner point. We have to ensure that the learning material is able to compensate for the absence of a live classroom teacher.

Exercises and practical work must be feasible for learners. Certain kinds of exercises and particular practical need resources, such as those available in a library/laboratory. Some exercises, such as essays, need assessment by a teacher. Work in a course must be selected so that the distance learner can actually perform the tasks set, and arranged so that exercises requiring external assessment occur when this is tutorial assignment is placed in the unit. We should not overlook these practical matters and should not underestimate the difficulty learners may face in working on exercises/activities.

Accuracy of the content

We have to ensure that the learning material is accurate and update the answers of 'check your progress' are correct and provide constructive feedback to the learners. In case of any inconsistency, we should refer to the source of information.

Language

Language makes communication effective. Distance education depends largely on the pre-produced printed materials, in pre-produced material; the quality of language is the deciding factor for its effectiveness. Quality presentation of the content depends on the clear and simple language at par with the level of the learner. While writing self-learning material, we should carefully judge the difficulty level of the language.

Learning at a distance demands high motivation and commitment among the learners. If the self-learning material is written in a difficult and ambiguous language, it will adversely effect the motivation of the learners. Extra care should be taken when dealing with the learners who lack necessary reading skills and have poor language competency. We should remember that use of simple language does not mean that new terms/words should not be taught to the learners.

In distance learning materials conversation and friendly language has an educational purpose. When you are writing a unit, you are actually communicating with your learners. You pedagogically interact with them through the content (presentation / transaction of content) and try to make the presentation conversational. In other words, the presentation is addressed to the learner. We therefore use the expressions: **you** and **we** quite frequently. This style does establish personalized rapport between you and your learners.

ACTIVITY 5

“Language makes communication effective.” Justify the statement relating to development of self-learning material. Write in about 100 words.

Illustrations

Illustrations, examples, case studies and anecdotes create interest, stimulate imagination, and increase comprehension in the learners. Various types of illustrations such as, presentation of photographs, diagrams, graphs, flowcharts, maps, cartoons, etc., can be used. These make the content localized and conceptualized thus cater to the needs of individual learners.

Evaluation

As mentioned earlier, the self-learning should be self-evaluated, which will ensure whether the objectives of the unit are achieved. Evaluation helps the learner to know where they stand. The questions make the learning text interesting and break its monotonous nature. The built-in questions motivate learners to actively participate in the learning process. The functions of these questions are to help the learner to revise information/knowledge and, to provide him/her feedback. Thus, through these questions, we actually help the learners to proceed step-by-step to the learning outcomes stated in the beginning of the unit.

The following points help you in developing appropriate questions:

- Generally short answer and objective type questions are used. The activity-based questions could be long answer and open-ended with a purpose to encourage the learners to relate the text material with practical experience.

Instructional Inputs

- The questions should be based on the objectives of the unit.
- The questions should be easily accessible and sufficient input should be given in the text to work on them.
- The number of questions depends on the objectives and/or the learning points being discussed in a unit.
- Hints, if not the exact answers to the activities, could be given.
- The learners may be asked for additional work based on the discussion such as a case study, action research, problem-solving exercise, project work, etc.
- For exercise, you can ask learners to work on an exercise for immediate practice. The model answer of the exercise may be given at the end of the unit.

Summary

In this unit we discussed the concept of learning and tried to link it with self-learning materials (SLMs) because SLMs are based on the principles of learning. We discussed the main characteristics of SLMs. We differentiated between the textbook and SLM. The preparation of SLMs depends on the synthesis of theories of learning and communication.

Access devices and transaction of content constitute a self-learning unit. Access devices help the learners to reach as close to the content as they can and make the content more intimate. To transaction the content it is divided into sections and sub-sections, and arranged in most logical sequence. The content is transacted in simple language and in conversational style. The self-check questions, exercises and activities help the learners to know whether they are on the right track and are able to achieve the objectives.

Suggested readings



Koul, B. N. and Chaudhary, Sohanvir (1989). *Self-instructional course units - IGNOU Handbook 5*. New Delhi: Indira Gandhi National Open University.

Thompson, Bruce (2003). *Introduction to open learning and instructional design for open learning*. Vancouver: Commonwealth of Learning (COL).



Questions for critical reflection

1. Why should we state objectives in behavioural terms? Justify. Your response.
 2. What is concept mapping? How is it useful for a course writer? Select a topic from your discipline and develop 3-4 concept maps. Judge the strengths and weaknesses of each concept map. Select the best maps and justify.
 3. What type of questions should be presented in SLMs and why?
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