

**Economic and Social Commission for Asia and the Pacific**

Train the Trainer

# **Training Fundamentals**

Instructor's Reference Manual



**UNITED NATIONS**

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## Overview

### **Module 1: Principles of Learning**

|       |  |      |
|-------|--|------|
| 1.    | Introduction   | 1.1  |
| 1.1   | Module Objectives  | 1.1  |
| 1.2   | What is learning and how do we learn?                          | 1.1  |
| 1.2.1 | Acquiring relevant knowledge                                   |      |
| 1.2.2 | Thinking for understanding                                     |      |
| 1.2.3 | Doing  |      |
| 1.3   | Factors affecting learners and the learning process            | 1.3  |
| 1.3.1 | Principle 1: Utilise and stimulate the senses                  |      |
| 1.3.2 | Principle 2: Recognise the learning curve                      |      |
| 1.3.3 | Principle 3: Don't abuse the attention span                    |      |
| 1.3.4 | Principle 4: Encourage the effective use of memory             |      |
| 1.3.5 | Principle 5: Try to motivate students in their learning        |      |
| 1.3.6 | Principle 6: Accommodate different learning styles             |      |
| 1.3.7 | Principle 7: Ensure effective feedback in the learning process |      |
| 1.4   | Reflecting on this module                                      | 1.9  |
|       | Instructor's Checklist No. 1                                   | 1.10 |

### **Module 2: Lesson Planning and Preparation**

|       |   |     |
|-------|---|-----|
| 2.    | Introduction  | 2.1 |
| 2.1   | Module Objectives                                   | 2.1 |
| 2.2   | Producing a structured lesson plan                  | 2.1 |
| 2.2.1 | Learning objectives                                 |     |
| 2.2.2 | Lesson content                                      |     |
| 2.2.3 | Instructional methods                               |     |
| 2.2.4 | What teaching and learning resources will you need? |     |
| 2.2.5 | Assessment  |     |

|     |                              |      |
|-----|------------------------------|------|
| 2.3 | Evaluation of the lesson     | 2.10 |
| 2.4 | Reflecting on this module    | 2.10 |
|     | Instructor's Checklist No. 2 | 2.11 |

### **Module 3: Instructional Methods**

|       |   |      |
|-------|---|------|
| 3.    | Introduction  | 3.1  |
| 3.1   | Module Objectives   | 3.1  |
| 3.2   | Core instructional methods                                    | 3.1  |
| 3.2.1 | Lecturing and explaining                                      |      |
| 3.2.2 | Demonstration   |      |
| 3.3   | Supporting instructional methods                              | 3.4  |
| 3.3.1 | Group work (cooperative learning)                             |      |
| 3.3.2 | Questioning   |      |
| 3.3.3 | Discussion  |      |
| 3.3.4 | Case-studies  |      |
| 3.3.5 | Role play   |      |
| 3.4   | Deciding on methods   | 3.11 |
| 3.5   | The use of activities or learning tasks in promoting learning | 3.11 |
| 3.6   | Designing and using learning tasks                            | 3.12 |
| 3.7   | Individualised instruction                                    | 3.12 |
| 3.8   | Knowing the subject well                                      | 3.13 |
| 3.9   | Playing the role of tutor                                     | 3.13 |
| 3.10  | Suggestions for administering individualised instruction      | 3.14 |
| 3.11  | Reflecting on this module                                     | 3.15 |
|       | Module Activities   | 3.16 |
|       | Instructor's Checklist No. 3                                  | 3.17 |

### **Module 4: Teaching and Learning Resources**

|     |                                     |     |
|-----|-------------------------------------|-----|
| 4.  | Introduction                        | 4.1 |
| 4.1 | Module Objectives                   | 4.1 |
| 4.2 | How do TLRs contribute to learning? | 4.1 |

|       |  |      |
|-------|--|------|
| 4.3   | General points of consideration in using teaching and learning resources | 4.2  |
| 4.4   | The use of specific TLRs   | 4.2  |
| 4.4.1 | Black/whiteboards/flipcharts   |      |
| 4.4.2 | Overhead projection transparencies (OHTs)                                |      |
| 4.4.3 | Supporting notes – handouts  |      |
| 4.4.4 | Videos   |      |
| 4.4.5 | Multimedia   |      |
| 4.5   | Preparation of facilities and training aids                              | 4.6  |
| 4.5.1 | Classroom/study area arrangements  |      |
| 4.5.2 | Audio-visual equipment in the classroom                                  |      |
| 4.6   | Reflecting on this module  | 4.11 |
|       | Module Activities  | 4.12 |
|       | Instructor's Checklist No. 4   | 4.13 |

## **Module 5: Assessing Learner Performance**

|       |  |     |
|-------|--|-----|
| 5.    | Introduction   | 5.1 |
| 5.1   | Module Objectives                                    | 5.1 |
| 5.2   | The criteria for good assessment                     | 5.2 |
| 5.2.1 | Validity   |     |
| 5.2.2 | Reliability  |     |
| 5.3   | Key terms used in the language of assessment         | 5.3 |
| 5.3.1 | Summative assessment                                 |     |
| 5.3.2 | Formative assessment                                 |     |
| 5.3.3 | Assessment scheme                                    |     |
| 5.3.4 | Assessment evidence                                  |     |
| 5.3.5 | Assessment methods                                   |     |
| 5.3.6 | Assessment items                                     |     |
| 5.4   | Planning a scheme of assessment                      | 5.4 |
| 5.4.1 | Why assess?  |     |
| 5.4.2 | What to assess?                                      |     |
| 5.4.3 | How to assess?                                       |     |
| 5.4.4 | How to interpret the products of assessment?         |     |
| 5.4.5 | How to communicate assessment decisions to learners? |     |
| 5.5   | General principles in test construction              | 5.7 |

|       |   |      |
|-------|---|------|
| 5.6   | Types of assessment items   | 5.7  |
| 5.6.1 | Alternate response or true-false items                            |      |
| 5.6.2 | Multiple choice items (MCQs)                                      |      |
| 5.6.3 | Matching items  |      |
| 5.6.4 | Completion type items   |      |
| 5.6.5 | Essay type items  |      |
| 5.6.6 | Performance tests   |      |
| 5.7   | Preparing a marking scheme for assessments                        | 5.13 |
| 5.8   | Pitfalls in assessment  | 5.15 |
| 5.8.1 | The halo effect   |      |
| 5.8.2 | Contrast effect   |      |
| 5.8.3 | Assessing progress and effort rather than achievement             |      |
| 5.8.4 | Lack of clarity with the marking scheme and the standard required |      |
| 5.8.5 | Discriminatory practices  |      |
| 5.9   | Reflecting on this module   | 5.16 |
|       | Module Activity   | 5.17 |
|       | Instructor's Checklist No. 5                                      | 5.18 |

## **Module 6: Evaluating Teaching and Learning**

|       |  |      |
|-------|--|------|
| 6.    | Introduction   | 6.1  |
| 6.1   | Module Objectives  | 6.1  |
| 6.2   | What is evaluation?  | 6.1  |
| 6.3   | What aspects of the course are to be evaluated?                  | 6.2  |
| 6.4   | Types of evaluation  | 6.2  |
| 6.5   | Collecting evaluation data                                       | 6.3  |
| 6.5.1 | Sources of evaluation data                                       |      |
| 6.6   | Responding to significant feedback from evaluation               | 6.4  |
| 6.6.1 | Typical concerns or problems that emerge from course evaluations |      |
| 6.7   | Preparing end of course report                                   | 6.5  |
| 6.7.1 | Content of report  |      |
| 6.7.2 | Format of report   |      |
| 6.8   | Identifying and planning instructor's own development            | 6.7  |
| 6.9   | Reflecting on this module  | 6.7  |
|       | Module Activities  | 6.8  |
|       | Instructor's Checklist No. 6                                     | 6.10 |

## **Module 7: Course Development**

|       |   |     |
|-------|---|-----|
| 7.    | Introduction                                | 7.1 |
| 7.1   | Module Objectives                           | 7.1 |
| 7.2   | What do we mean by a course?                | 7.1 |
| 7.3   | Developing a course                         | 7.2 |
| 7.3.1 | Phase 1: Preliminary study                  |     |
| 7.3.2 | Phase 2: Job analysis                       |     |
| 7.3.3 | Phase 3: Population analysis                |     |
| 7.3.4 | Phase 4: Design of curriculum               |     |
| 7.3.5 | Phase 5: Design of modules                  |     |
| 7.3.6 | Phase 6: Production and development testing |     |
| 7.3.7 | Phase 7: Validation and revision            |     |
| 7.3.8 | Phase 8: Implementation                     |     |
| 7.3.9 | Phase 9: Evaluation                         |     |
| 7.4   | Reflecting on this module                   | 7.5 |
|       | Instructor's Checklist No. 7                | 7.6 |

## **Glossary of Terms**

## **Index**

# **Overview**

|   |     |
|---|-----|
| Introduction                                    | 0.1 |
| Instructors' manual on training fundamentals    | 0.1 |
| Instructors' workshops on training fundamentals | 0.1 |
| The changing training environment               | 0.2 |
| Instructors' Workshop                           | 0.4 |
| Structure of the Instructors' Manual            | 0.5 |



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*Training Fundamentals*

## **Overview**

### **Introduction**

This manual on training fundamentals is designed to assist Instructors (trainers) from national training institutes and Instructors (trainers) from the transport industry to deliver the training material on freight forwarding, multimodal transport and logistics that is being developed by the ESCAP secretariat in Bangkok.

The programme of assistance has two components to it.

- Preparation of an interactive manual on training fundamentals.
- The conduct of workshops on training fundamentals.

### **Instructors' manual on training fundamentals**

This manual that you are about to delve into is the product of a collaborative effort. The base material came from UNCTAD, Trainmar. The material was taken apart, revised incorporating new ideas including text from the FIATA training manual, and put together again by the ESCAP secretariat. The draft manual was validated at the Training of Trainer workshop (TOT) organised by ESCAP in conjunction with the ASEAN Federation of Forwarders Associations (AFFA) from 17-21 July 2000. The draft manual (commonly referred to as a TOT manual) was further refined, taking into account the feed back received from the workshop participants. The ESCAP secretariat then worked further to edit and text design the manual so that it engages you - the reader, and provides clear direction on training fundamentals.

### **Instructors' workshops on training fundamentals**

In an ideal scenario this manual on training fundamentals (TOT manual) would be supplemented with a workshop on training fundamentals. A specialist on training fundamentals can then lead you through the manual, and discuss the ideas and concepts. Most importantly, participation at a workshop on training fundamentals can provide you with the opportunity of practicing and strengthening new skills. However we often work in less than ideal scenarios, where the only way of improving your teaching skills would be through self-study. We have thus prepared the TOT manual in a manner that would facilitate such study.

The ESCAP secretariat is collaborating with several organizations to conduct, and facilitate the conduct of workshops on training fundamentals. Further information on such workshops can be obtained from the Chief, Transport, Communications, Tourism and Infrastructure Development Division of ESCAP.

## The Changing Training Environment

The developments that have taken place in the field of computer-based training and distance education have not changed the fact that the instructor continues to be one of the most important elements in the process of teaching and learning.



When we think about our own educational experiences, most of us can recall a particular teacher who was able to make the subject come alive and inspired our learning without the modern technology available today. “Chalk and talk” – teacher talking and using the blackboard – used to be the norm in teaching method some 25 years ago. It was and still is a very effective method of teaching. However, as you will see in this manual, there are many methods of teaching, each with advantages and limitations in terms of helping students to learn effectively.

Furthermore, the training environment in which you would be expected to work differs from a traditional “teaching” environment where the teacher delivers new knowledge in a school or university set up. Your learners are not “regular” students. They are mature adults who may have “given up studying” a long time ago. One of your initial important tasks may be to bring them back to a learning environment and continue to engage their attention.

The fact that they have enrolled in the course could mean that they are interested in learning. On the other hand, it could mean that the company policy requires that they follow the training programme. Whatever the case may be, it is up to you as the Instructor or Trainer to make the learning effective and meaningful, as well as a rewarding experience for both of you.

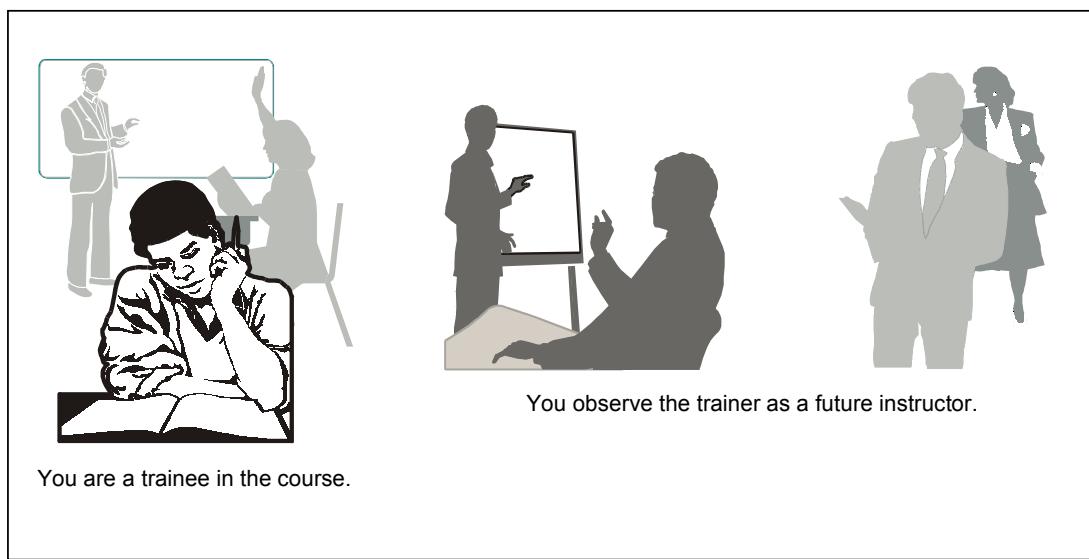
## Instructors' Workshop

The majority of the instructors who will be involved in delivering the substantive training material on freight forwarding, Multimodal transport and Logistics course being developed by ESCAP would have the opportunity of attending an instructors' workshop.

Such a workshop is unusual because from the outset you and your instructor are actually doing what you are learning about. You need to develop a special awareness to help you to learn about the instructor's job and what problems learners can have, through observing your own instructor, yourself and your fellow learners at work.

You have, for example, the opportunity to watch how this course is introduced. You can observe how the course is organised, and how the instructor (trainer) deals with problems that arise during the delivery of the course. Note when you are bored, or anxious or pleased. Observe the techniques that are effective and the techniques that are ineffective.

The following diagram illustrates this process:



Reflecting on your own experience is a very effective and lasting form of learning.

## **Structure of the Instructor's Manual**



The instructor's reference manual has been written in an interactive fashion to provide you with some theoretical ideas and practical information on different aspects of teaching and learning. Although it has been written in an interactive manner, and would be a useful manual for someone who wanted to improve his or her training skills, it is meant to be used as a manual at a workshop on training fundamentals.

The reference manual will assist you to become a confident and effective instructor who can assist in the delivery of the ESCAP training material on freight forwarding, Multimodal transport and logistics. Since the objective is for you to deliver training material relating to a course that is already developed, there will be less emphasis in the manual on course development and more emphasis on instructional methods and assessment of trainees.

The material is organised in a series of modules that provide a structured guide to developing the key competencies in teaching and training. Apart from Module 1, which focuses on essential underpinning knowledge, each module will focus on one competence area and take you through the essential areas and questions that you will need to address in developing competence in that area. Do remember, however, that each competence is related to the other competencies and should not be seen in isolation. This will be clearly illustrated and reinforced in the event that you attend an instructors' workshop.

The following are the seven modules that comprise this manual on training fundamentals.

**Module 1: Principles of Learning**

**Module 2: Lesson Planning and Preparation**

**Module 3: Instructional Methods**

**Module 4: Teaching and Learning Resources**

**Module 5: Assessing Learner Performance**

**Module 6: Evaluating Teaching and Learning**

**Module 7: Course Development**

There is an assumption that you are familiar with the substantive aspects of freight forwarding and multimodal transport and would be willing to continue to study the subject matter further. Continued study and updating our knowledge are necessary if we are to be in a position to explain the concepts and the practical application of the concepts in the specialised area of transport. Knowledge and mastery of teaching techniques will enable you to be an effective instructor only if you have mastery over the subject matter of freight forwarding, multimodal transport and logistics.

## **Principles of Learning**

|   |      |
|---|------|
| Introduction  | 1.1  |
| Module Objectives                                   | 1.1  |
| What is learning and how do we learn?               | 1.1  |
| Factors affecting learners and the learning process | 1.3  |
| Reflecting on this module                           | 1.9  |
| Instructor's Checklist No. 1                        | 1.10 |



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# Principles of Learning

## 1. Introduction

Teaching and training is only effective if it promotes learning.

As instructors we are expected to be not only highly competent in our subject areas but also have sound knowledge concerning how students learn. This reflects a shift away from the traditional role of the teacher as primarily a provider of subject knowledge to a *facilitator* of learning – whereby we manage student learning, using a variety of instructional methods, information sources and media.

We now have a solid body of knowledge concerning how we learn, the different processes involved and significant factors that affect learning. This knowledge can increasingly contribute to all aspects of teaching and course planning.

In this module you will learn some of the key principles of learning and the implications of these principles for teaching. You will then be able to ensure that your lesson planning and delivery provide more opportunities for motivating students and facilitating their learning.

### 1.1 Module Objectives

On completion of this module you should be able to:

- identify the key components of effective learning
- analyse factors that promote and inhibit effective learning
- evaluate the impact of principles of learning for practical teaching.

### 1.2 What is learning and how do we learn?

In the most basic sense learning involves acquiring new knowledge, skills and attitudes that result in some change in our ability to do something. In competence-based training we seek to promote a change that results in greater competence to perform certain desired work functions.

Much has been written about how we learn. A good starting point is to ask yourself the following question: *How have I learnt in different learning situations?* You may probably have thought of some of the following: I attended a course; I did some reading; I asked a colleague; I thought about it; I tested the information through trial and error; I planned it; I kept practicing.

The above list is not exhaustive, but you will notice a pattern in your responses. Let us look at these in terms of three broad headings:

### 1.2.1 Acquiring relevant knowledge

All learning involves the acquiring of some knowledge, though the extent of this would vary depending on what is to be learned. Learning a language, for example, requires much knowledge acquisition. However, even in skill-based activities like playing football, there is still important knowledge to be acquired for effective performance, for example, the rules of the game. The key process in knowledge acquisition is memory.

### 1.2.2 Thinking for understanding

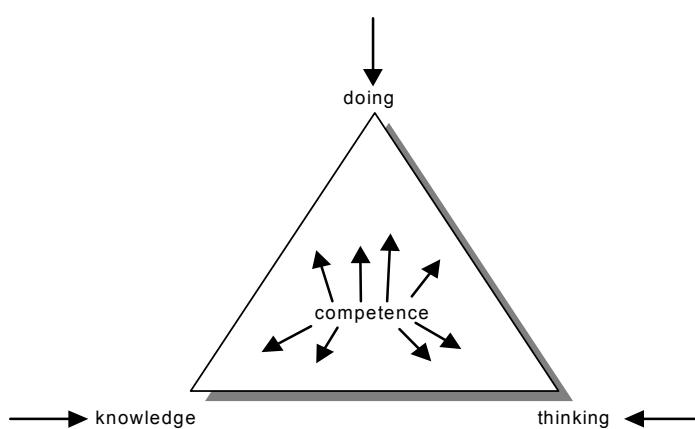
However, the mere acquisition of knowledge in itself is often not sufficient for effective learning. Learners need to make sense of what they have learned and know when, where and how to use this knowledge. *Understanding* the information you have acquired is, therefore, fundamental to effective learning in most cases.

Understanding involves more than memory; it requires us to think about what we are learning and make sense of it in terms of real life applications. Without understanding, much of what we learn through memorisation would have little use and is likely to be soon forgotten.

### 1.2.3 Doing

Learning is often for the practical purpose of developing competence in an activity. This could be work related, such as learning to use new software; or recreational, such as learning to play tennis. Learning in these situations involves actually doing the activities, and improvement in performance requires practice over time. For example, try to juggle three tennis balls or play a three-chord sequence on a guitar – assuming, of course, that you do not have these skills already!

In real learning situations, these three components of learning do not occur as separate processes, but are dynamic and mutually support the overall learning process. For example, as we acquire more knowledge, think better about what we are doing and practice more, we tend to become more competent at that activity – whether it is work related or otherwise. This process is represented in Figure 1.1.



**figure 1.1**

Competent performance develops from the acquisition of appropriate knowledge, good thinking and doing – over time. Different types and levels of competence will require more or less ‘knowledge’, ‘thinking’ and ‘doing’. Effective learners are competent at acquiring knowledge, developing understanding through good thinking and applying these in doing.

### **1.3 Factors affecting learners and the learning process**

While the above model can be applied to all learning and is a useful guide for planning instruction, the actual process of learning for students is influenced by a great variety of other factors. For example, if you reflect on the factors that have influenced your learning, you will probably find it has been affected by:

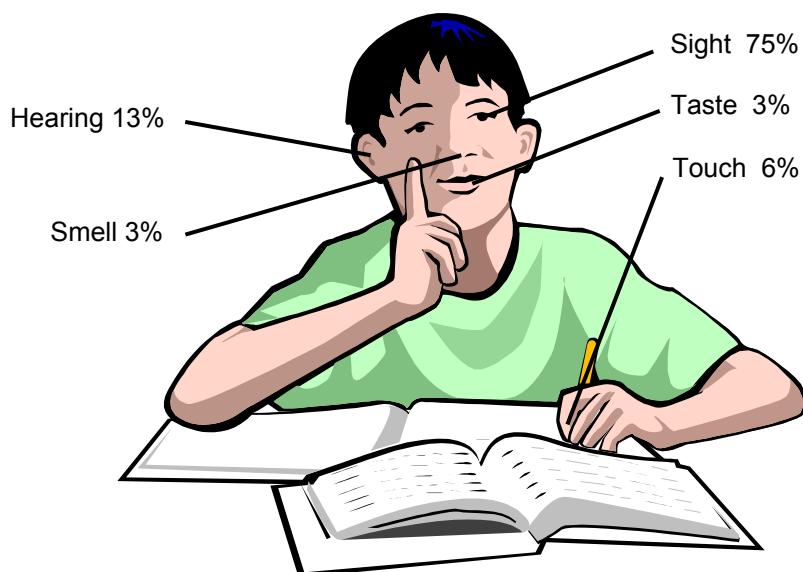
- your motivation
- the relationships you have had with teachers and peers
- your access to resources and time constraints
- your mood and situational factors
- your prior learning in a given area
- how you were taught
- how relevant you perceive the learning to be.

The above is not a full list of all possible factors that affect learning, but it clearly shows the range of factors that affect the learning process. Most importantly, it shows that learning is a social and emotional process, as well as an intellectual one. For example, students who have no motivation, or have other things on their minds, may fail in learning tasks that are well within the scope of their abilities.

The following are seven important principles of learning that you must constantly bear in mind in planning and delivering the lessons you teach.

#### **1.3.1 Principle 1: Utilise and stimulate the senses**

Mental activity is stimulated through our five senses. Research suggests the following as percentages of how much each sense contributes to our learning:



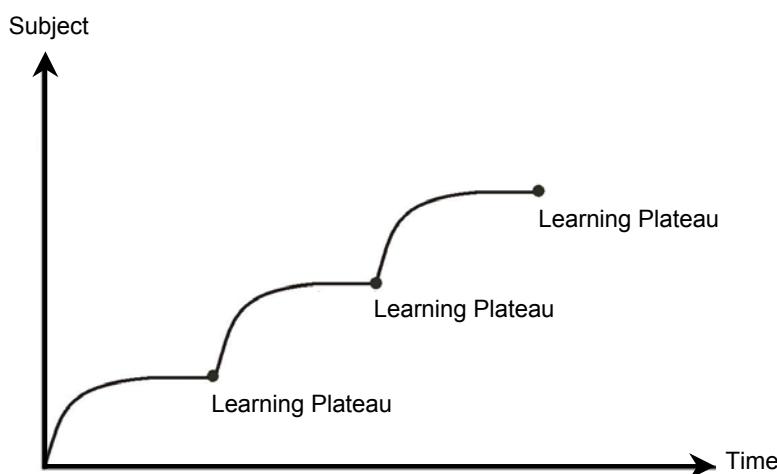
The greater the combination of our senses that are stimulated in learning, the more successful the learning is likely to be. For example, it is estimated that we learn:

|     |                                |
|-----|--------------------------------|
| 10% | of what we <b>read</b>         |
| 20% | of what we <b>hear</b>         |
| 30% | of what we <b>see</b>          |
| 40% | of what we <b>see and hear</b> |
| 50% | of what we <b>discuss</b>      |
| 70% | of what we <b>experience</b>   |
| 90% | of what we <b>teach</b>        |

It is for this reason that an active approach to learning is advocated. The need to engage students in thinking, questioning and doing real work activities is central to promoting effective learning.

### 1.3.2 Principle 2: Recognise the learning curve

Learning is a continuous process, but it does not progress at the same rate. For example, when you start to learn something new, there is often little progress for a while, then you are likely to experience a spurt in learning when you seem to learn quite a lot quickly. However, you then often experience a plateau in your learning when little progress seems to be made, even though you are working just as hard as before. At this time you are consolidating what you already have learned. Usually sustained effort is needed to create a new learning spurt. This tendency for learning to occur in spurts and plateaus can be represented in Figure 1.2.

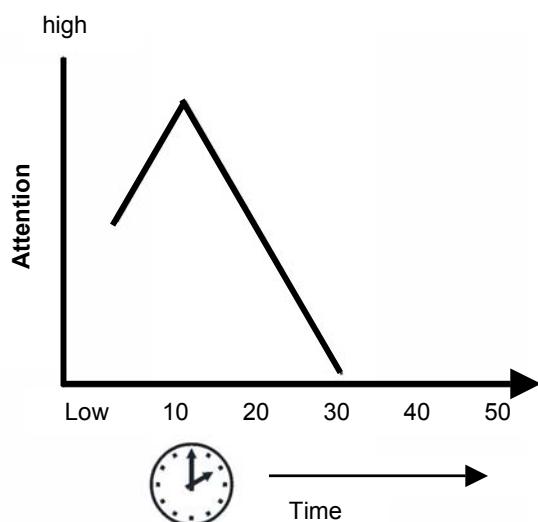


**figure 1.2 Learning 'curve'**

It is important, therefore, to help students to become aware of these spurts and plateaus in their learning. This will help them to maintain their confidence and motivation when experiencing plateaus in learning.

### 1.3.3 Principle 3: Don't abuse the attention span

Attention plays a crucial role in learning. Without good attention, learning is likely to be partial and ineffective. Of course, our ability to maintain attention is greater if we are motivated. In a typical lesson where the instructor is doing all the talking our attention tends to follow the broad path shown diagrammatically in Figure 1.3.



**figure 1.3      Attention graph**

The implications of this for teaching are very important. It shows that long periods of talk by the instructor, without opportunities for student participation, are likely to be ineffective as a method of teaching. This is a typical mistake made by instructors who think that more input by them equals more learning. This is clearly shown to be incorrect. Your own experience of being a student will fully bear this out.

### 1.3.4 Principle 4: Encourage the effective use of memory

As pointed out earlier in this unit, the acquisition of knowledge is a key component of effective learning. We need both to memorise and understand knowledge. In this section we will focus on how memory works, the problem of forgetting and the implications for how we teach.

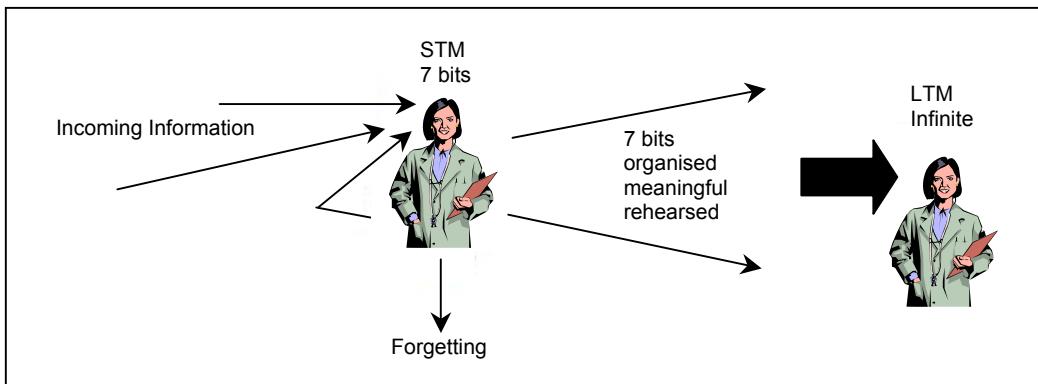
#### 1.3.4.1 How memory works

It is useful to think of our memory systems as possessing two interrelated components:

1. A short-term memory system (STM), which can only cope with approximately seven bits of information at one go.
2. A long term memory system (LTM), which has almost an infinite capacity for storing information. This contains all the information we can recall.

The effective transfer of information from STM to LTM is crucial for the acquisition of knowledge. In order to achieve this transfer, it is essential that the information makes sense to the learner (is meaningful); is in manageable chunks (around seven bits); is organised; and is sufficiently rehearsed (repeated a number of times until easily recalled).

The memory process mentioned earlier is summarised in Figure 1.4.



**figure 1.4 A model of the memory process**

#### 1.3.4.2 How forgetting occurs

There are a number of theories concerning forgetting. Most important for our purpose as instructors is that *over 60% of factual information will be lost within 48 hours if there is no subsequent rehearsal or review of what was learned*. Skills and understanding are much more resistant to forgetting. For example, once you learn to swim, it is unlikely that you will ever forget how to swim, even if you do not swim for many years.

The more information is reviewed in the first day or so after it is 'learned', the more likely is the chance of it becoming established in long term memory.

#### 1.3.4.3 Implications for teaching and learning

It is most important that students are made aware of these basic principles of memory. This will save them making the typical mistake of trying to memorise too much too quickly. From the point of view of teaching, we must recognise that if we speak for long periods, there is little likelihood that much information will actually be memorised. It is important to keep information well organised and allow students time to digest the content, either through question and answer sessions or activities.

(NB. Module 2 'Instructional Methods', considers the various ways to in which learning can be made more effective).

#### 1.3.5 Principle 5: Try to motivate students in their learning

Motivation is crucial for effective learning. Students can learn effectively and independently when they are interested in what they are learning. However, much of classroom learning is often perceived as uninteresting, which makes the learning process more difficult.

Making learning more interesting, meaningful and active is a real challenge to instructors. In fact, this is a major purpose behind the production of this manual.

### 1.3.6 Principle 6: Accommodate different learning styles

There is a body of evidence to suggest that as individuals we have our own characteristic ways of processing information, feeling and behaving in learning situations. In basic terms this means that while all of us learn through acquiring knowledge, thinking and doing, we have different approaches and preferences in terms of how we do these activities.

One area of research has shown that there can be significant differences in the ways in which people approach a learning task. For example, some people will try to get an overall picture or understanding of the task before they focus on more specific details and linkages. In contrast, other people will approach the task in a more sequential manner, making linkages gradually and methodically, and only building up to an understanding of the overall task much later in the learning process. The most effective learners seem to be able to adopt both of these styles simultaneously and in a versatile manner.

Another main area of research in this area has identified preferences in terms of learning modality. Some people clearly have preferences in terms of using the following sensory modalities in learning:

- **visual** seeing pictures, words, diagrams
- **auditory** listening to explanations
- **kinesthetic** actually doing the activity

There are important implications in different learning styles and modality preferences for the ways in which we teach. These differences clearly suggest the need for learning to involve the range of senses and provide many different ways in which learners can go about their learning. Of course, it is not possible for instructors to cater for all preferences all the time. However, it serves as a reminder to use a range of instruction methods and provide a variety of learning sources for students whenever possible.



### **1.3.7 Principle 7: Ensure effective feedback in the learning process**

Feedback is crucial to effective learning in the following important ways.

- Feedback identifies the present state of learning.
- Feedback highlights what needs to be learned and suggests how to proceed with such learning.
- Feedback monitors progress in learning, helping to diagnose problems quickly and find effective solutions.
- Feedback provides positive reinforcement for learning achievements.

Many students suffer frustration and may lose self-esteem if they find that they are not succeeding in learning a particular subject or skill. Very often they lack a prior competence or are employing incorrect technique. Without skilful feedback and guidance from the instructor many students may lose motivation and fail in their learning.

#### **1.3.7.1 Key tips in giving feedback**

- ***Give feedback sooner, rather than later.***

It is most useful to provide feedback as soon as possible. This enables students to make any necessary changes in their learning plan. In addition, they are more likely to see the importance of the feedback and make the necessary connections to what they have been doing.

- ***Incorporate the positive (where possible).***

Sometimes the feedback we have to give students will not be positive. If, for example, they have not complied with course requirements, or have seriously misunderstood a key issue, then what we have to say to them will naturally contain many negative points. However, in most cases, we should also be able to offer students something positive in our feedback, providing, of course, they are willing to make the necessary effort from their side.

What we say and how we say it will have a lasting impact on our students. Think carefully about your tone of voice and body language in giving feedback. In most cases, we are seeking to build effective rapport at the same time as we are trying to provide feedback.

- ***Use feedback as a two-way process.***

Use feedback as a two-way activity. Encourage students to articulate their concerns. The more you understand their difficulties in learning, the greater is the chance that you will be able to teach them effectively and provide the right feedback in the best manner.

## 1.4 Reflecting on this module



This module has provided you with a model of learning and some of the key principles that underpin learning. Certain implications for the practice of teaching have also been clearly identified. In the subsequent units, you will see how many of these principles are incorporated into the planning and delivery of teaching.

Do remember that learning is a complex process and is influenced by many factors. Also students have their own distinct personalities, motivations and concerns. As instructors we try to understand both the general processes of learning and the uniqueness of each individual we teach. This makes the role of the instructor both challenging and rewarding. As instructors, we are constantly learning about how best to help our students learn in the most effective ways for them.



Course : \_\_\_\_\_ Centre : \_\_\_\_\_

Date : \_\_\_\_\_ Instructor : \_\_\_\_\_

**Have you considered the following principles when planning and delivering your lesson to the trainees?**

- Utilising and stimulating your trainees' senses
  - *Have you conducted your lesson in such a manner that your trainees are exposed to the following senses in their learning:*
    - Sight*
    - Hearing*
    - Touch*
    - Smell*
    - Taste*
- Recognising the trainees level of academic abilities and work experience in relation to the level of lesson you intend to deliver
  - Can the trainees cope?*
  - Have you conducted your lesson in such a manner that your trainees are achieving the required level of understanding?*
- Recognising your trainees' level of attention span
  - Is your lesson too long?*
  - Have you given appropriate "breaks" so that your trainees' attention span is not severely affected?*
- Encouraging the effective use of memory
  - Is the information meaningful to the trainees?*
  - Are they delivered in small and manageable chunks?*
  - Are they repeated several times (until they are easily recalled)?*
- Motivating your trainees
  - Have you conducted your lesson in an interesting and stimulating way that motivates your trainees?*

- Accommodating to your trainees' differing learning styles
  - *Have you used the following sensory modality in your training?*
    - *Visuals (objects, picture, diagram, words)*
    - *Auditory (oral explanations)*
    - *Kinesthetic (doing the activity)*
- Ensuring effective feedback in the learning process
  - *Have you solicited feedback of your lesson from your trainees?*
  - *Has the feedback been evaluated?*
  - *Has the outcomes of the feedback been incorporated in your future training?*

## **Lesson Planning and Preparation**

|                                    |      |
|------------------------------------|------|
| Introduction                       | 2.1  |
| Module Objectives                  | 2.1  |
| Producing a structured lesson plan | 2.1  |
| Evaluation of the lesson           | 2.10 |
| Reflecting on this module          | 2.10 |
| Instructor's Checklist No. 2       | 2.11 |



*Train the Trainer*

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*Training Fundamentals*

# **Lesson Planning and Preparation**

## **2. Introduction**

In this module you will learn how to prepare for the lessons you intend to teach. Planning and preparation are a crucial part of effective teaching, especially for those new to the profession. If you have planned your lessons effectively, you are less likely to experience difficulties and will feel more confident in the teaching situation.

### **2.1 Module Objectives**

On completion of this module you should be competent to:

- produce a structured lesson plan for a range of lessons you teach
- prepare classroom arrangements and teaching facilities.

### **2.2 Producing a structured lesson plan**

All lessons, irrespective of the topic to be taught, must contain the following important elements:

- 1 learning objectives
- 2 lesson content
- 3 instructional methods
- 4 teaching and learning resources
- 5 assessment of learning

A lesson plan is a written document that identifies how you intend to incorporate these five elements into any lesson you teach. It will also identify specific aspects relating to the group you are teaching, for example, module name, topic area, time of lesson, location, etc. Once produced, the plan is a working document for teaching this particular lesson. For example, after teaching the session, you can reflect on its effectiveness and make any subsequent changes for future sessions. In this way you have both a plan for the session and a basis to improve and develop it.

In producing your lesson plans, you should also consider:

- A what format or template to use
- B how detailed to make the plan

## A) What format or template to use

For this module we provide you with a ready-made template. In practice you may modify the template for your own planning requirements, but it must cover the elements documented above.

| Instructor :                | Date :      | Time:                     |                             |
|-----------------------------|-------------|---------------------------|-----------------------------|
| Module:                     | Topic:      | Location:                 |                             |
| <b>Learning objectives:</b> |             |                           |                             |
| Subject/Content             | Time (mins) | Teaching/Learning Methods | Teaching/Learning Resources |
| Introduction                |             |                           |                             |
| Body/Development            |             |                           |                             |
| Summary                     |             |                           |                             |



**figure 2.1 Lesson plan template**

## B) How detailed is the plan?

This is really up to you. Some instructors like to have a more detailed plan to ensure that there is no danger of ‘getting lost’ in the lesson. Others are comfortable with a summarised version. For some of the modules you teach, lesson plans may already have been produced. In this case, you will need to follow the format provided.

### 2.2.1 Learning objectives

Objectives are specific action statements, which specify what the learner will be able to do, or say, or think, as a result of attending a course or a particular session. They do not state what the instructors will do or teach.

For objectives to serve both instructors and learners well, they should:

- identify exactly what successful learners should be able to do
- make sense to learners who have not yet achieved the objectives (in other words, not contain words or ideas that learners cannot understand).

#### example: A properly written objective

Objective 1: At the end of this module, you should be able to correctly write specific action statements (learning objectives) that outline what successful learners should be able to do upon completing training sessions that you have conducted.

Performance objectives contain three elements:

- A an observable action/behaviour/performance
- B the conditions
- C the standard/criteria

#### 2.2.1.1 The behaviour or the performance

Objectives must clearly identify what the trainees will be able to **do** as a result of the training and are typically expressed as an *action verb*. The verb must define something *that is observable* and should not be open to interpretation, for example: *to write; to calculate; to complete a form; to implement*. Where the verb defines something that is *non-observable*, for example: hidden behaviour such as examine; realize; think through; know; enjoy, they should be replaced if possible with an *action verb* such as those listed in Table 2.2.

#### 2.2.1.2 Condition or “given”

The *performance*, however, is not the only factor to be considered in writing an objective. For example, “*to drive*” can be the beginning of an objective, but to drive a car on a dry road is different from driving a truck on a road with ice. We have to know the “*condition*” or what is “*given*”. This means being very clear about how the performance will be carried out. For example:

- Will the trainee have a checklist or work from memory?
- Will the instructor work with validated material or will he have to develop his own material?
- Will the pilot fly only in calm weather or in a storm?



### 2.2.1.3 Standard or “criterion”

This is the third factor to consider. A phrase which says “To type a letter with an electric typewriter” is almost an “**objective**”. We have the verb: *type*. We have the condition: an *electric* and not a manual typewriter. But what is the criterion? How *well* does the letter have to be typed? Is it acceptable to have 10 typing errors or two typing errors or none at all? How long can it take? An hour, a day or a month?

#### **example: Another properly written objective**

To type a one page business letter on any modern electric typewriter, laying the letter out in standard business style, with no spelling or typing errors, in less than 30 minutes.

What is important is for the intended learning outcomes to be clearly stated. It is not necessary that each objective should reflect the three factors above. But they are useful criteria to follow until you become proficient. Even after you become proficient, they can be a good guide.

In writing your objectives it is, therefore, very important to think about how you will check whether the objective has been achieved. This is usually done through different forms of assessment, particularly through a *validated test*. “Validated” means that the test has been tried with other trainees and been shown to provide an effective measure of performance. Those who have achieved the objective pass the test. Those who have not achieved the objective do not pass the test. The validated test enables the instructor and the trainee to find out whether the objective has been achieved.

### 2.2.1.4 Structuring and sequencing of objectives

Once you have produced the objectives for your module, it is important that they are appropriately structured and sequenced. Ensure that in each area covered the objectives lead to a progressive build up of the skills and knowledge to be acquired. Preceding objectives should support learning in subsequent objectives for each content area.

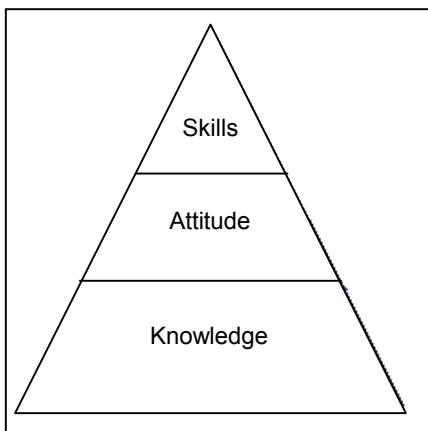
In summary, an objective is a statement in which the trainer communicates as clearly as possible what the trainee needs to learn, whether this is specific knowledge acquisition, skill or both.

#### **example: Training objectives in the transport sector**

In the transport sector, we have already determined that skills development is an important factor. What then should be the focus of such skills development? What should be the broad objectives of training in the transport sector?

##### ***Broad objectives: What must training accomplish?***

- It must give confidence.
- The trainee must be able to do something she/he could not do before.
- It must give a clear understanding of the work.
- It must increase the knowledge.
- It must broaden the understanding of transport concepts.



Training should be geared towards one or more of the following three objectives:

**knowledge + practice = skills**

From the students' point of view:

*Learning is the process of acquiring new knowledge, skills and attitudes.*

Source: adapted from FIATA Train the Trainer Document

### 2.2.1.5 Skills development

In designing a training programme, different methods will be needed to teach different types of skills. The main classes of skills in training are physical skills and intellectual skills.

**Table 2.1: Classes of skills**

| <b>Skill</b>                  | <b>Examples in maritime transport</b>  |
|-------------------------------|--|
| <b>Physical (motor) skill</b> | Manipulate a fire hose<br>Load a container on board a ship   |
| <b>Intellectual skills</b>    | Distinguishes between a Bill of Lading and a Waybill<br>Identifies between different classes of goods<br>Determines the freight rate for cargo shipped on different types of vessel<br>Generates a weather forecast<br>Decides whether a ship's hold has been adequately cleaned<br>Diagnoses a break down in communication between team members |

#### 2.2.1.5.1 Physical skills

These skills enable a person to make coordinated movements, perform manual tasks and carry out physical activities. Driving a crane, running out a fire hose, stuffing a container. Often known as "motor skills", they are generally dependent on several other skills:

- Rule using (procedures, rules, etc.)
- Discrimination (between signals and irrelevant information)

#### 2.2.1.5.2 Intellectual skills

These range from the most elementary to the very complex. There are many ways of classifying these skills, but for practical training purposes, we have divided intellectual skills into four categories as follows.

**Table 2.2: Intellectual skills**

|                 |  |
|-----------------|--|
| Classifying     | This skill will enable a trainee to explain basic concepts and rules and provide definitions. This is considered to be the most basic of intellectual skills.  |
| Rule-using      | This skill will enable trainees who have learned the basic concepts to then apply the concept or given rules to calculate or judge the result.   |
| Discriminating  | Discrimination requires higher skill than in rule using. It involves making a judgement. The trainee needs to experience different situations before the skill can be fully acquired. For example, a traffic policeman who has to decide whether a vehicle is being driven dangerously cannot be given precise rules and has to learn through experience how to discriminate between a vehicle that is being driven dangerously and a vehicle that is being driven with normal care. |
| Problem solving | Problem solving extends the trainee's rule-using skills beyond discriminating to finding solutions to problems. The rules learnt have to be combined with logic and experience in a complex fashion. Beyond problem solving lies other finer skills worth noting, particularly cognitive strategy. This is the personal way in which a person thinks – intuitive, creative and systematic.   |

**Table 2.3 Action verbs useful in describing a skill**

| Classifying  | Rule-using  | Discriminating   | Problem solving  |
|--|---|--|--|
| to allocate<br>to arrange<br>to assign<br>to catalogue<br>to characterise<br>to classify<br>to collect<br>to compile<br>to define<br>to describe<br>to file<br>to grade<br>to group<br>to identify<br>to index<br>to itemise<br>to order<br>to rank<br>to reject<br>to screen<br>to sort<br>to specify<br>to survey<br>to tabulate | to calculate<br>to calibrate<br>to check<br>to compute<br>to convert<br>to correct<br>to deduce<br>to design<br>to determine<br>to equate<br>to examine<br>to expect<br>to explain<br>to extrapolate<br>to foresee<br>to illustrate<br>to interpolate<br>to interpret<br>to monitor<br>to organise<br>to plan<br>to predict<br>to prescribe<br>to schedule<br>to solve<br>to translate<br>to verify | to accept<br>to adjudicate<br>to appraise<br>to appreciate<br>to arbitrate<br>to assess<br>to authenticate<br>to choose<br>to compare<br>to criticise<br>to discriminate<br>to estimate<br>to evaluate<br>to gauge<br>to judge<br>to match<br>to rate<br>to recognise<br>to review<br>to value<br>to weigh | to accommodate<br>to adapt<br>to analyse<br>to compose<br>to conclude<br>to construct<br>to contrive<br>to coordinate<br>to correlate<br>to create<br>to develop<br>to devise<br>to diagnose<br>to discover<br>to find a way<br>to generalise<br>to infer<br>to invent<br>to programme<br>to project<br>to realise<br>to reason<br>to resolve<br>to solve<br>to synthesise<br>to trouble-shoot |

### **2.2.1.6 The learning sequence in skills training**

To accomplish a task a trainee needs several of the categories of skills described above. These skills can be taught and learned in a particular sequence referred to as a *psychological sequence*.

This sequence moves from simple to complex and should be followed in dividing the course into training modules and in designing the sequence of activities within a module.

### **2.2.1.7 Influencing attitude**

Attitude can be examined at several levels. At a more profound level, the rapidly changing transport scenario requires a change in attitude amongst those working in the industry. We often have industry leaders and policy makers talk of the need for “attitudinal change”, for example, a more “outward looking attitude” or a more “positive attitude” or “an attitude that can see the comparative advantages” of the industry.

These objectives cannot be achieved overnight and require a particular type of training that will expose the trainees to new developments in the industry and new thinking.

Attitude can also be examined at a more basic level. A person’s attitude towards a given situation or problem is often exhibited through their actions. For example, does a worker work carefully rather than negligently? Does the worker willingly help a colleague or does he/she refuse or find excuses not to? Do they remain calm in an emergency or panic?

These attitudes and behaviours depend partly on a person’s temperament, social background and education and cannot be changed easily. However, they are also dependent upon the trainee’s experiences and such experiences and exposure can be provided through training.

To change a trainer’s attitude on a specific issue is an important training objective and there are techniques to do this. Although the required attitude may best be described by a verb which is inactive, such as *to be convinced of*, *to be in favour of*, it is essential to write the attitude-changing training objective to be a change in **observable** behaviour. This will usually be in the form of choosing from different alternatives, which can be tested before and after training to show whether the trainee’s attitude has actually changed.

## **2.2.2 Lesson content**

The content is the knowledge that you want to impart during the session. This knowledge may focus on promoting understanding of a topic or underpinning a skill that students are to subsequently learn.

The greater the knowledge and understanding of the subject matter; the more effective will be your teaching. Simply knowing the subject, or knowing how to do a task (for example, calculate the freight rate, select the optimum route) will not enable you to teach such tasks effectively. You need to develop a framework or structure on which you can fit the knowledge.

It is essential that the content is well organised and follows a sequence that best supports learning for the group. It is often useful to initially identify the key concepts, principles and models that you intend to teach. These can then be sequenced in a manner that will enable learners to build understanding from the basic and concrete to the more complex and abstract.

Ensure that, in broad terms, there is a beginning, middle and an end. *Do make sure that the beginning outlines the objectives of the session and the end provides opportunities for recap and clarification.*

### 2.2.3 Instructional methods (Discussed in more detail in Module 3)

Instructional methods refer to the planned strategies we use to help learners understand the content and develop competence in what we intend them to learn, that is, meet the objectives. The most used methods are *explanation* and *demonstration*. However, these methods are most effective when supported by other methods that encourage interaction and participation. For example, the use of questioning techniques, pair or group activities make learning more active and motivating for learners.

In planning your use of methods it is important to ensure that:

- the content is well facilitated by the method used.  
For example, in teaching a practical skill, it is essential to use demonstration and supervised practice. Simply explaining how things are done is unlikely to enable individuals to learn the skill.
- the methods fit the maturity and composition of the group.  
Ensure that the learning group has the necessary experience and competence to be able to effectively learn from the methods used.

### 2.2.4 What teaching and learning resources will you need?

Teaching and learning resources refer to any teaching aids and resource materials that are to be used in the session to help develop the intended learning. These include audio-visual aids, IT applications, tasks for learners to complete and handouts. Teaching and learning resources are often used in tandem with methods and need to be closely integrated. For example, in explanation, we often use overhead-transparencies to summarise and focus key points. Similarly, in using group learning as a method, there is often a need to provide an appropriate task and support resources.



Ensure that resources are well produced and clearly support what you intend learners to achieve. It is often useful to consider particular responses you want from a specific resource, for example, emphasis, promoting questions, summary, etc. If you are providing handouts to support and extend what you have covered in the session, ensure they are sufficiently comprehensive, well organised and reader-friendly. Try to make them easy to follow and attractive to read.

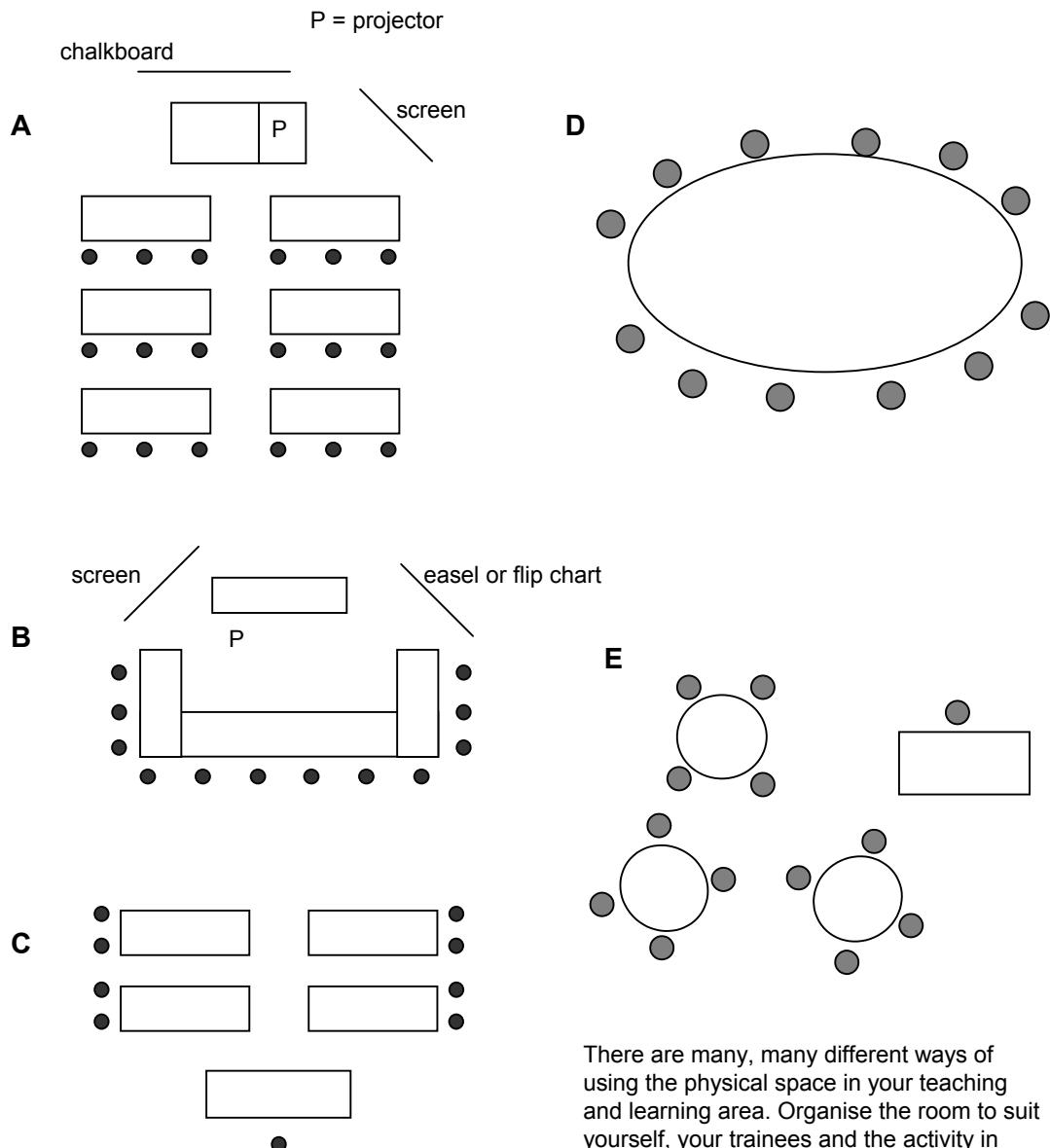
The best planned lesson can be totally ineffective if other important planning considerations have not been fully thought out and implemented. On many occasions trainers have planned certain activities for a lesson only to find that the training area does not have the necessary facilities, for example, an overhead projector or computer access. It is very important, therefore, to find out, as far as is possible A) details of the training area, available facilities, and B) information about the group of trainees who will be attending. The following are the key things to check out carefully.

#### 2.2.4.1 Training area and resource availability

Ensure that the training area or classroom can accommodate the number of trainees comfortably and is arranged in a way to suit the methods and activities you intend to use. However, in some cases, you may not be able to organise the layout until just before the lesson. It helps, therefore, to arrive in good time so that modifications can be made and facilities checked. Do not attempt activities that are beyond the room's capacity or resource availability; they are unlikely to be effective.

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##### Room organisation options



There are many, many different ways of using the physical space in your teaching and learning area. Organise the room to suit yourself, your trainees and the activity in which you are all engaged. Change the organisation of the room whenever you feel a change will assist the learners.

#### **2.2.4.2 The learning group**

If you are teaching a new group of trainees, try to find out as much information as possible relating to their learning. Apart from knowing how many are attending your training, identify their previous learning in this area and any specific characteristics, if known.

#### **2.2.5 Assessment**

Assessment is often thought of as allocating marks and something to be done at the end of a course, not in every session. However, assessment should also be an ongoing process of identifying what and how individuals are learning, and providing a guide for the pace and nature of instruction. It is also a valuable source of feedback to learners, enabling them to monitor their own learning both in terms of competencies met as well as how to develop competence yet to be achieved.

Ensure that assessment is planned into a session, whether this be formative (developing learning) or summative (measuring performance for grading) purposes, or both. Also, ensure that the methods used for assessment are most appropriate for what is to be assessed.

### **2.3 Evaluation of the lesson**

Evaluation is one of the best ways to improve on any area of performance, and teaching is no exception. It may be useful to leave some space on your lesson plan for later evaluative comments.

In terms of lesson planning, you may want to refer to any reflections/suggestions you have made from evaluations of previous sessions. In evaluating a session, you are, in fact, helping the preparation of future sessions. This is particularly the case for future sessions in the same area.

It is well worth spending some time in reflecting on ‘what went well’ and ‘what did not go so well’ in your sessions. Do make any necessary notes on your lesson plan. From experience, you are likely to forget intended changes if they are not jotted down on the plan.

### **2.4 Reflecting on this module**



This module has provided you with the basic principles and framework to guide you in preparing and conducting your lessons. In the next module, you will be introduced to the various instructional methods which you may adopt in conducting your trainings.



Course : \_\_\_\_\_

Centre : \_\_\_\_\_

Date : \_\_\_\_\_

Instructor : \_\_\_\_\_

**Learning objectives and assessments**

- In your lesson plan planning, have you written down your objectives?*
- Are your objectives clear and measurable against specified criteria?*
- Are your objectives expressed in action words (see table 2.3)?*
- Have you devised what you will assess and what are the desirable outcomes for the trainees?*

**Content***Review your content.*

- Is it clear?*
- Is it logically structured?*

**Teaching space and resources**

- Have you checked the physical resources of your teaching space?*
- Have you organised your teaching resources?*

## Instructional Methods

|  |      |
|--|------|
| Introduction   | 3.1  |
| Module Objectives  | 3.1  |
| Core Instructional Methods                                 | 3.1  |
| Supporting Instructional Methods                           | 3.4  |
| Deciding on Methods  | 3.11 |
| The use of Activities/Learning Tasks in Promoting Learning | 3.11 |
| Designing and using learning tasks                         | 3.12 |
| Individualised Instruction                                 | 3.12 |
| Knowing the subject well                                   | 3.13 |
| Playing the role of tutor                                  | 3.13 |
| Suggestions for Administering Individualised Instruction   | 3.14 |
| Reflecting on this module                                  | 3.15 |
| Module Activities  | 3.16 |
| Instructor's Checklist No. 3                               | 3.17 |



# Instructional Methods

## 3. Introduction

In Module 2, we saw the importance of good planning and preparation. However, the lesson plan itself will not teach the lesson effectively. It is the teaching methods and communication skills of the instructor that translate the plan into an effective learning experience for the trainees. The instructor can make the subject interesting and alive for the learner. In this module we will outline the range of instructional methods that can be employed under the “umbrella” term of teaching.

### 3.1 Module Objectives

In completing this module, you should be able to:

- compare and contrast a range of instructional methods
- select appropriate instructional methods for the specific content you teach
- use a range of instructional methods in your teaching role.

**What do we mean by an *instructional method*?** An instructional method, in the broadest sense, refers to any planned activity on the part of the teacher that seeks to promote identified learning.

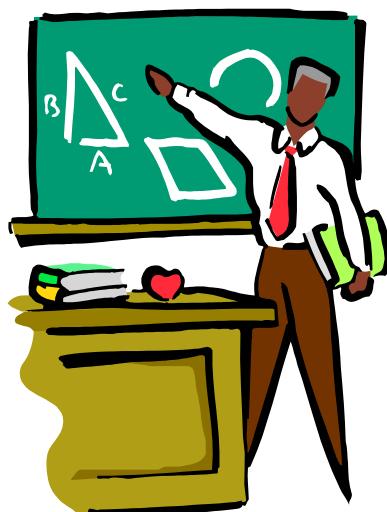
The following sections will outline and appraise the main instructional methods used in typical teaching or training contexts. This will help you to make effective decisions concerning the choice and use of instructional methods for your teaching or training role.

## 3.2 Core instructional methods

We refer to these methods as *core* in the sense that they are probably the most used approaches and provide structure for a wide variety of equally important supporting methods.

### 3.2.1 Lecturing and explaining

Explanation is the most used instructional method. It is often referred to as “the lecture method”, “presentation” or “chalk and talk”. If used well it can facilitate effective learning by conveying key facts, concepts and principles. This will provide a framework to guide the learners through a topic and stimulating interest in a subject.



### **3.2.1.1 Attributes of good explanation**

Effective explanation is characterized by:

- clear statements and examples of what is being explained and its relevance to what learners need to know
- logical organisation of information with appropriate examples and analogies to illustrate concepts and principles
- linking of key topics, concepts and principles
- re-capping of key points at the end of each sub-topic
- a clear engaging style of presentation
- supporting well-designed and appropriate teaching and learning aids
- opportunities for student involvement.

### **3.2.2 Demonstration**



*Demonstration* is a widely used and effective method for teaching of skills at all levels. Like explanation, it is always linked in some way to other instructional strategies.

For example, learners are unlikely to learn effectively from demonstration alone. They will need guided practice and feedback on how they are doing.

The following is a guide for planning and conducting a demonstration session.

#### **3.2.2.1 Pre – demonstration planning**

- Be clear in your mind about what you are trying to demonstrate.
- Analyse the skill(s) you intend to demonstrate:
  - a) Identify the crucial steps of the activity and break it down into basic operations and procedures.
  - b) Identify what senses and what hand; body and foot movements are involved.
- Remember that what is easy and comprehensible to you will be less so for most learners. Therefore, try to simplify without sacrificing essential skill components.
- Organise the equipment needed and prepare any teaching aids that will help learners understand what is involved.

### **3.2.2.2 Carrying out the demonstration**

- Make sure everyone can see.
- Arouse the interest of learners.
- Describe what you intend to do and why.
- Run through the complete activity (or discrete sub-activity) first, so that learners know what they are aiming to do.
- Reveal the main steps of the activity and identify the likely problem areas.
- Accompany each step with a verbal description, and attempt to show the skill from the operator's point of view. However, do keep to the main points. Too much talking will distract students from the visual demonstration.
- Adjust the speed of your movements to suit your learners, especially if they are watching and then copying. Watch for their responses and actions and alter your pace accordingly.
- Inspire confidence in learners as you go along. This way they will be willing and keen to have a go.
- Try not to over-impress or be too absorbed in your own demonstration. Remember that you are trying to help learners achieve competence. Over-indulgence in your skills may rob some learners of self-confidence when they try to practise the skill.
- On finishing the demonstration, check that the process has been fully understood. Ask participants to recap the main points of the activity. This will help to identify gaps in knowledge and reinforce learning.

### **3.2.2.3 Learner practice and supervision**

Learners need to practise new skills in order to achieve a positive and beneficial result. In providing learners with opportunities for individual practice, you should remember the following.

- Plan specific times during the session when individual practice is to be undertaken.
- Arrange the environment with care. Ideally such things should be done before learners arrive, but reality may dictate otherwise. Establish a procedure to re-arrange settings when necessary.
- Ensure that when learners begin, they have an achievable objective in mind.
- Try to ensure that learners are employing the correct procedure right from the start. This is more likely to occur if participants know exactly what they are to do.
- Instil some enthusiasm into the proceedings.
- Be conscious of the group as a whole, even when you are dealing with one person at a time. Listen to what is going on around you in case some learners are bored, confused or giving each other wrong advice.
- Allocate your time fairly between individuals. Adults do not expect equal time every session, but they expect you to be fair overall.
- Provide swift and accurate feedback for learners.
- Be encouraging and praise people for what they are doing or trying to do. The whole purpose of individual practice is to do it more efficiently and effectively. When and where learners experience positive results, their achievement will encourage them to put in more effort for further success. However, until learners achieve some degree of competence, you will need to reinforce their efforts in positive ways.

### 3.3 Supporting instructional methods

The following instructional methods can all be incorporated within the core methods outlined above or used as the major method for developing certain types of learning in a session:

- group work (cooperative learning)
- questioning
- discussion
- case studies
- role-play.

The following sections will provide you with key information on the effective application of these methods.

#### 3.3.1 Group work (cooperative learning)



Much has been written on the benefits of cooperative or collaborative learning. Group-based learning can be very effective as an instructional strategy in a variety of ways as outlined below.

- It encourages communication and team working.
- It facilitates problem solving and decision making.
- It provides an active basis for learning.
- It enables the sharing of knowledge and the meeting of different viewpoints and perspectives.
- It encourages ongoing peer assessment.

However, managing group learning can be difficult and the possible benefits to learners can be offset if group activities are poorly organized and facilitated.

##### 3.3.1.1 Planning the group exercise

Probably the most important thing for an Instructor to do when planning and conducting group exercises is to **stay in control** of the activities. This will require: thorough planning and scheduling of space and time frames, thorough consideration of trainees' skills and personalities for assignment to groups, constant follow up (and possible help) with each group's progress, controlling the time of small group activities and of the presentations while class is together, and above all – patience. Being in control does not mean intervening all the time. You may be silent for hours and still be "in control".

Group exercises can be in many forms. Two of the most common are:



A **large problem (or case study)** where each small group takes on a small part of the problem, resolves their portion, and later comes together with the other groups when the whole class is assembled. During the class session, each part of the problem and its solution is presented by a spokesperson for each group. Later the whole problem is

then discussed by the class and resolved. The Instructor, of course, must control this resolution.



The *same problem* (that may have several solutions or even one best solution) is given to each small group. Each group works on the problem and attempts to arrive at a conclusion or solution. Later, the groups are assembled and their leaders present each group's solution. This is usually followed by a discussion of differences and how the conclusions were reached – monitored by the Instructor.

There are other forms, such as assigning small groups of trainees to assemble or repair pieces of machinery or equipment, allowing trainees of similar backgrounds or learning speeds to work together on class projects or portions of the training course, etc.

### **3.3.1.2 How to conduct group exercises**

There is a series of activities an Instructor must attend to for a small group training exercise to be successful. Although the importance of each activity may vary from one centre or class to another, the following areas, at least, must be considered and acted upon.

#### **3.3.1.2.1 Plan out the exercises ahead of time**

This requires you to:

- Review case problem(s) or exercises to anticipate potential difficulties and alternative solutions.
- Schedule training centre space ahead of time so things will run smoothly.
- Thoroughly review the background and progress of your trainees to ensure an intelligent assignment of group leaders and members in each working group. Remember, you are seeking interaction and participation, **not** hostility or dominance by certain members.
- Schedule the times for separate group study and for full class participation realistically. Allow sufficient time for trainees to work out and debate the answers but not enough time for them to get bored.
- Make notes for your instructions to the class. Be sure they are complete and concise. Include information on what will be expected of the groups, the leaders, how long they will have, how to contact you with questions and what will be expected of them when the class reassembles. Display instructions and schedule.

#### **3.3.1.2.2 Introduce the exercises**

Select the trainees as members of each group. Try, when possible, to distribute people with special skills or talents evenly throughout the groups and, above all, try to avoid putting trainees with personality conflicts together in the same group; to do so leads to argument, wasted time and frustration of the other members. Try to construct groups so that the more shy trainees will feel free to offer their opinions without inhibition.

Give clear, concise directions using your prepared notes. Be sure to cover:

- who belongs to which groups
- where each group will meet (and how to get there)
- what resources (if applicable) are available – and where
- how long they will have to solve the problem (stress that timing is important)
- when and where the class will come back together
- what the group is to do while working together

- what your role will be during the exercise and how you will contact them and how they can contact you
- who are the leaders of each group and what are their responsibilities.

### **3.3.1.2.3 Conduct the group exercises**

Follow up at the start of the exercises to be sure each group has found its study location and got started.

Check progress and interaction within each group during the exercise. If they are having small problems, be patient and encourage **them** to work things out as a group. Look for participation by the quietest trainees and encourage them.

Remind each group of the imminent end of its individual exercises at least five minutes before it is due. **Stick to your schedule!**

### **3.3.1.2.4 Conduct the class presentations, summary or review**

Stay in control of the assembled groups and explain to them what procedures will be applied to cover the time for each group to present their solutions or viewpoints, as well as rules about interruptions or distractions. Make sure schedules are met fairly.

Conduct the summary or discussion of the exercise, making sure each group's efforts is given due credit. Maintain a neutral position.

### **3.3.1.2.5 Always remember to thank the groups for their participation.**

## **3.3.2 Questioning**

The effective use of questions is one of the most difficult but effective methods for promoting learning. The skilful use of questions can achieve the following results:

- Questions can stimulate interest and motivation.
- Questions can use learners' knowledge for the benefit of the group.
- Questions encourage communication between group members.
- Questions focus thinking skills and the practise of thinking skills.
- Questions encourage the development of self-expression of thought and feelings.
- Questions can be used to assess student knowledge and understanding.

### **3.3.2.1 Key tactics in using questions**

- Make the questions clear and brief, and ask just one thing at a time.
- Pitch questions at the right level for the individual or group, using language they understand.
- Choose the right type of questions for your purpose, for example, open questions for exploration; closed questions for a focused response.
- Ask questions in an encouraging way. Your manner will often determine the response.
- Pause to give students time to answer. Answering a question involves a series of mental operations: "Do I understand the question?"; "Do I have the answer?"; "Am I prepared to offer it?"; "Actually speak it?". Learn to cope with *thinking* silences.

- Distribute questions so that everybody has a chance to contribute.
- Sequence questions if you need to ask more than one, and ensure that they are in a logical order.

### **3.3.2.2 Responding to student answers**

- Respond to students' answers warmly, using non-verbal as well as verbal signals.
- Ensure that incorrect responses are dealt with appropriately. Do not allow an individual to feel embarrassed, but don't allow an incorrect response to pass without correction. Some useful strategies include:
  - rephrasing the question for the individual concerned
  - providing clues to the correct answer
  - allowing other individuals to offer a response.
- If you cannot answer a question, be honest and offer to find the necessary information if it is pertinent to the course of study.

### **3.3.3 Discussion**

Discussion can be a very effective method when the main objective is to encourage learners to share information and compare points of view. It can specifically promote learning in the following main ways:

- by providing a framework for cooperative learning
- by encouraging the critical appraisal of different perspectives
- by developing a range of thinking skills.

#### **3.3.3.1 Managing a planned discussion**

- Determine the objectives and scope of the particular discussion. Make it clear to the group what the specific purposes are.
- Get the environment right, e.g. the shape of the room, seating arrangements, etc.
- Prepare key questions in advance, but work situationally with the emerging flow of the discussion.
- Treat all viewpoints with respect, even though you might disagree strongly with a position taken.
- Manage the participation of individuals carefully. Do not allow any individuals to monopolise the discussion. However, don't pressure people to contribute.
- Keep the group focused on the topic (allowing for some exploration of related issues) and ensure that contributions are relevant and purposeful. You will need to:
  - clarify vague or confusing remarks
  - challenge obvious misconceptions
  - check that everyone understands the key points raised in the discussion.
- Encourage contributors to support their statements, especially when they show a clear prejudice.
- Note important points so that you can refer to them later on.

- Call a halt to procedure at the right moment, i.e. when the discussion has covered the topics sufficiently or the group stops being productive in terms of relevant inputs.
- Summarise what has been discussed, identifying the critical learning points and issues.

### **3.3.3.2 Structures for promoting discussion**

#### **3.3.3.2.1 Rounds**

A round simply involves everyone in the group, going around the circle in turn, commenting briefly on a particular topic. For example it might concern:

“Questions I would like answered....”

“Points on which I would like clarification....”

Rounds work well at the start of a session as they involve each person speaking once before anyone speaks a second time. This establishes a more balanced pattern of interaction and makes it much more likely that individuals will speak again later.

Taking your turn in rounds can be threatening in a large group, and students unfamiliar with rounds should be allowed to “pass” when it is their turn. Rounds need only take some 20 or so seconds per person, though you can suggest longer if your objective is to get students to explain their views in more detail.

#### **3.3.3.2.2 Buzz groups, pairs and triads**

Buzz groups are simply small groups of two or three students formed spontaneously to discuss a topic for a short period. In a pair, it is almost impossible for a student to stay silent and once students have spoken “in private” they are much more likely to speak afterwards “in public” in the whole group. Buzz groups are very useful to get things going, for example:

“To start off, how well did you progress with last week’s questions and the readings I set? Off you go.”

They are also useful when a difficult topic or some awkwardness has brought a session to a standstill. In such a situation, set a brief task or question for pairs to work on. For example:

What are the difficult areas of this topic?

What appears to be the best approach to take?

It does not matter if students work in two’s or three’s if you are just using buzz groups to liven things up and get everyone involved. If, however, you are setting a challenging task or a difficult question, pairs seem to be less disciplined and give up more easily.

Triads seem to be able to be more resourceful and rigorous, perhaps because at any give time one of the three is neither speaking nor being directly spoken to, and so can have half an eye on the question or task the group is supposed to be working on.

#### **3.3.3.2.3 Brainstorms**

Brainstorming is a very good method for a situation where the aim is to expand people’s thinking in an area and generate ideas. In brainstorming, any idea is welcomed and no justification is needed. This method is particularly appropriate at the beginning of a topic to identify existing knowledge and provide a framework for learning.

However, brainstorming must be well-conducted, with certain ground rules clearly adhered to. These are:

- All ideas are accepted without justification.
- People cannot comment on other people's suggestions.
- One person acts as the coordinator and writes up comments on the board and keeps a reasonable order on proceedings.

After an agreed period of time, or when no more suggestions are forthcoming, the group turns its attention to the total list, either accepting it as a statement of a range of possibilities or discussing selected items that seem most useful.

### 3.3.4 Case-studies

A case study is a capture of a real life situation. Cases typically provide information outlining a problem-based scenario, where decisions involving value judgements are involved. The information actually provided varies considerably with cases. Some contain very detailed and comprehensive information; others simply document the key elements of a situation. However, all good case studies have the following features in common.

- They present an authentic portrayal of important issues and processes in a topic area.
- They are interesting and appropriate for the group of learners.
- They encompass key knowledge for a topic area.
- They promote multiple interpretations of a situation.
- They offer more than one viable possible solution.

As an instructional method, case studies can help achieve the following outcomes.

- Promote skills of critical analysis and problem solving.
- Encourage reflective practice and decision making in complex situations.
- Motivate learners and create a framework for independent learning.



Find case studies involving real people and real situations. These are interesting to the students and assist their understanding.

#### 3.3.4.1 Using case studies

When using the case study method, there are certain "rules" to keep in mind.

- Be clear about what the case can teach and what you want the learners to accomplish.
- Ensure the case has been thoroughly read and digested. Clarify any points of misunderstanding.
- Establish a good climate for discussion in which learners can freely express their views and challenge the views of others.
- Use the case from more than one perspective. Illustrate different ways of framing the problem, and the assumptions and valuations that underpin these differences.
- Use good discussion management techniques.

- Introduce relevant theoretical knowledge, showing linkages of concepts and principles.
- Summarize the key issues and clarify any points of concern.

### **3.3.4.2 Poster board tours**

Groups work together on a task, but also produce a poster summarising the outcomes of their work. Posters can involve a design or proposal, lists of pros and cons of an approach, or the main features of a case study.



De-briefing this group work can take the form of displaying the posters. Group members may briefly introduce or explain the contents of their posters. Posters can be especially quick and effective as a means of sharing experimental and laboratory work where different groups have undertaken different experiments.

Once the posters are displayed, students can “tour” them, asking for clarification or adding comments and questions.

### **3.3.5 Role play**

Role-play can be a very useful method when learners need to develop and practise important social and interpersonal skills, for example, client service, conducting drills, meetings, counselling, etc. It enables learners to evaluate their performance and feelings in such situations and develop skills in simulated real life conditions without the consequences of real life failure.

#### **3.3.5.1 Using role-play**

- Ensure that learners can authentically and effectively play the roles.
- Provide sufficient – but not too much – information to enable participants to be able to take on the prescribed roles.
- Anticipate and have a plan for possible breakdowns in the role-play.
- Monitor the activity very carefully and be prepared to intervene if there are significant problems. (Judgement is needed here.)
- Ensure a thorough de-brief of the role-play, so that learners are clear as to the purposes of the activity.

### **3.4 Deciding on methods**

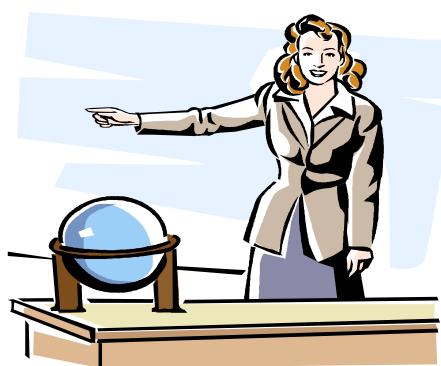
The above summaries of instructional methods should make clear that there are many ways in which learning can be facilitated. It is important to recognize that one method is not inherently superior to another method. All methods have strengths and weaknesses, which need to be borne in mind when planning sessions. For example, explanation can convey a lot of information quickly to big groups of learners, but lacks active involvement, which can soon lead to loss of attention.

The following are important questions to ask yourself concerning your choice of methods for a given session.

- Will the method achieve the identified learning outcomes?
- Will the method effectively facilitate the content you want to deal with and the types of learning required, e.g. knowledge, skills, and attitudes?
- Will the method suit the nature of the learning group and the individuals who comprise it, e.g. stimulate interest, promote self-esteem, etc?
- Will the method utilise the resources you have available and “fit” the environment?
- Will the method fit into your style or range of teaching skills? Are you comfortable and competent in using the method?

In a more general sense, it is important to vary and balance the use of different instructional strategies. For example, students often enjoy brainstorming and case studies, but over-use can lead to boredom and ineffectiveness over time. Research into the effectiveness of methods shows that a combination of methods – which allow learners to listen, look, talk and do – facilitate the best learning.

### **3.5 The use of activities or learning tasks in promoting learning**



For all the above instructional methods, with the possible exception of explanation, there is an expectation that learners will take an active role in their own learning. For example, in demonstration, learners have to actually attempt the task that is demonstrated. Similarly, in-group work, learners will be involved in activities or tasks set by the teacher.

Designing activities which stimulate and promote learning is a key part of effective instructional methods.

Learning tasks can be short and very focussed, as in a brainstorm activity or the creation of a poster tour. Typical learning tasks may require learners to:

- generate ideas on a given problem scenario using brainstorming
- read an article on a new product design and identify its uses and limitations
- produce a list of ways to improve a given situation
- set up an experiment to test a given hypothesis
- read a series of cases and identify similarities and differences.

### **3.6 Designing and using learning tasks**

To some extent this will depend on the size and nature of the task, as well as the competence of the learning group. However, the following key considerations will apply in most situations:

- The task is clearly focused on identified learning objectives.
- Success in the task meets or builds learning towards identified objectives.
- The task is as authentic as possible and realistic for the learning group.
- The task is clearly achievable in the time allocated.
- Clear and sufficient guidance on the task is provided to learners.

### **3.7 Individualised instruction**



In the final section of this module we will focus on the use of individualised instruction. Much of what we have covered in this and other modules will of course apply to individualised instruction. However, there are certain aspects of the teaching and learning progress that need specific emphasis when managing individualised instruction. As the term **individualised** suggest, there is a need to focus very much on the individual learner and his/her specific learning performance and needs.

#### **3.7.1 Managing individualised instruction**

In this role you will be administering the course materials according to the trainee's performance. Since everyone learns at a different speed (because of each trainee's different past experience, learning styles and many other factors), trainees can be expected to finish the course at different times. They may also have different problems as they progress through the course, arising from their varied backgrounds. You must see that:

- each trainee accomplishes the training to the best of his or her ability
- all trainees are given a feeling of challenge and are able to complete the training at their proper speed (Trainees capable of finishing early should be encouraged to do so, allowing you more time to work with trainees having problems.)
- sufficient materials and equipment are scheduled or are on hand and scheduled so that trainees don't have to wait to begin
- equipment, laboratory space and study areas are scheduled efficiently.

### **3.8 Knowing the subject well**

Your role as an expert in the subject you are teaching is more onerous when conducting individualised instruction than it is when you are operating as an instructor of group-paced training. The more direct and intense relationship you now have with your trainee leaves little room for concealment of any unforeseen gaps in your knowledge.

Remember that when you are dealing with the class in a one-to-one situation, the trainees expect **you** to be the expert and you are probably their only source of knowledge at this point. It is advisable that you adopt the following procedures.

- Refresh yourself thoroughly on the subject matter **before** class begins.
- Have additional reference sources available to help you and the trainees with any unusually difficult or unforeseen questions.
- If you don't know the answer to a question, tell the trainee so, but tell him or her also that you will look it up and let him know later. Never try to fake your way through, or you will lose credibility.
- Keep notes on questions you have problems with and review them before conducting the course again.

### **3.9 Playing the role of tutor**

Since all trainees are learning at their own speed, you are constantly in the role of a tutor. You will find that most trainees tend to enjoy the personal attention and that you can be very busy. As a result, you must make the most of the time and resources you have available. Some things you should consider when being a tutor are suggested below.

- Use your time wisely. Be friendly but discourage idle talk with a single trainee. There may be others waiting to see you.
- When discussing with a trainee his test results or any problems he may have, make use of some of the time as a personal progress interview. Make sure you "know" the trainee and how well he or she is really doing.
- When at all possible, give positive feedback. Don't be punishing. You do not want the trainees to be afraid to come to you with their problems. That is, after all, what a tutor is for.

If a trainee is having problems, don't be afraid to try other methods. The following are some possible courses of action:

- If a trainee has difficulty with individualised instruction material when first encountering it, try assigning other reference reading material and discussing it with him.
- A trainee who feels the need for a lecture-type course may be taken into a separate room with a chalkboard and talked through the lesson until at ease with the material.
- Some trainees feel clumsy with AV equipment. Be willing to help them to work the equipment and go through it **with** them until they can handle it confidently alone.
- Keep your discussions with trainees and their progress confidential. Don't discuss one trainee's progress with another.
- When you are ready to start the lessons, you should go to the instructor and let him or her know you are ready. You will be given a trainee number to keep your progress confidential.



### **3.10 Suggestions for administering individualised instruction**



This brief section is to summarise what you have experienced so far by giving out a list of suggestions to follow then managing your own individualised course. Read them over and keep them available for later use.

Prepare for the first day carefully. Use our checklists and be sure you give enough time to explain individualised instruction to the trainees. Remember, this may be their first experience with this kind of training. Remind them that they are **not** in a race to finish early. Notify them, clearly, of any sessions in which they must all be together.

Use your first private contact with individual trainees to reinforce that they are **not** competing with each other. Ask them how they feel about the training and encourage them. Be friendly but not over friendly. Avoid idle gossip discussion. The trainees are there to learn.

At the beginning of the course, assign a number of letters to each trainee privately. You may want to have them draw numbers from a hat to ensure privacy. Record all scores for trainees by their number or letters to keep records confidential. This also discourages trainees from hurrying to be the first to finish.

In rare cases, you may want to assign a trainee who is doing exceptionally well as an assistant tutor if you have another trainee doing very poorly. Be very cautious however and adopt the following practices.

- Be sure to check with both trainees first to determine if they want to do this.
- Provide private areas for the trainees to work together.
- Be sure you ask additional questions of the trainee in trouble to be sure he has not just cribbed the answers from the trainee helping him.

### 3.11 Reflecting on this module



This module has provided you with the range of instructional methodologies an instructor like yourself can adopt in conducting your training. The effectiveness of the instructor's delivery and communication skills can make the subject interesting, alive and engaging to the participants.

In summary, we will list some of the general principles that you, an instructor, may adopt when conducting your training sessions.

- Check necessary facilities, space and equipment every day to be sure everything is available and working. You should have made all necessary arrangements with our training centre's administration long before class begins.
- Gather as many additional resources as you can for every course. The more materials you have available, the more flexible you can be with each trainee.
- Don't be afraid to use other techniques or media (when available) to help trainees in trouble.
- Keep notes for each lesson regarding what additional help you had to give and why. This will help you with your post-course report, and alert you to similar situations that may arise on future courses.
- Keep your trainees' records up-to-date regularly. Since you will be spending most of your time tutoring and managing the course materials, you could easily forget to correct records and cause confusion.
- Use each contact with a trainee constructively. Always provide immediate feedback to them on results and get their reactions to the course and the style of training.



Remember that when you are dealing with the class in a one-to-one situation, the trainees expect you to be the expert and you are probably their only source of knowledge at this point. Refresh yourself thoroughly on the subject matter before class begins.



### **Activity 1 for this module: Observation of an experienced instructor**

For this activity you are to observe and evaluate a lesson conducted by an experienced instructor/trainer. The key purpose of the activity is to observe an experienced professional in order to offer a means of reflection on your own practice as a new trainer.

By “experienced instructor” we mean a colleague who has taught for a number of years and whom you feel it would be worthwhile to observe in a teaching situation.

An important aspect of this assignment is the consultation prior to and after the observation. Apart from making it very clear that you are not judging the instructors’ performance, you must discuss and decide what aspects of classroom practice you are most interested in focusing on. The following are some possible areas of focus:

- the teaching strategy adopted for the particular student group (i.e., the combination of instructional methods and learning activities employed)
- how students’ learning is assessed in the context of the lesson
- aspects of personal communication and classroom management



### **Activity 2 for this module: Produce a structured lesson plan**

For this activity you are to produce a structured lesson plan for a class you intend to teach in the near future. The duration of the session must be at least one hour. You may use the lesson plan format provided earlier in this module or design your own.

The lesson plan should clearly show:

- the learning outcomes/lesson objectives
- the organisation and development of content
- the instructional methods to be used
- the use of teaching/learning aids and activities
- how learning is to be assessed

***Over the page is a checklist that you can use to help complete this exercise.***

Course : \_\_\_\_\_

Centre : \_\_\_\_\_

Date : \_\_\_\_\_

Instructor : \_\_\_\_\_

**Methods**

- Have you planned for a variety of instructional methods?*
- Have you made allowance for a variety of teaching and learning styles?*
- Lecturing and explaining?*
- Demonstration?*
- Practical experience for trainees?*
- Group work?*
- Questioning by students?*
- Case studies?*
- Role play?*
- Individual instruction?*

## **Teaching and Learning Resources**

|   |      |
|---|------|
| Introduction                                    | 4.1  |
| Module Objectives                               | 4.1  |
| How do TLRs contribute to learning?             | 4.1  |
| General points of consideration when using TLRs | 4.2  |
| The use of specific TLRs                        | 4.2  |
| Preparation of facilities and training aids     | 4.6  |
| Reflecting on this module                       | 4.11 |
| Module Activities                               | 4.12 |
| Instructor's Checklist No. 4                    | 4.13 |



*Train the Trainer*

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*Training Fundamentals*

# **Teaching and Learning Resources**

## **4. Introduction**

In the broadest sense, teaching and learning resources (TLRs) refer to any stimulus material that the teacher uses in order to promote effective learning. This includes everything from a newspaper cutting to a multimedia CD-ROM. However, in this section of the course material, the focus will be on the use of five types of TLRs frequently adopted by teachers:

- black/whiteboards/flipcharts
- overhead projection transparencies
- supporting notes – ‘handouts’
- videos
- computer based multi-media packages.

### **4.1 Module objectives**

In completing this module, you should be able to:

- compare and contrast the range of teaching and learning resources (TLRs)
- select the appropriate TLRs specific to the content and venue of your training
- use a range of TLRs to enhance your training and to facilitate your trainees’ understanding.

### **4.2 How do TLRs contribute to learning?**

The use of TLRs can enhance the learning process in a number of interrelated ways by:

- engaging attention and interest
- reinforcing key aspects of the subject matter (people learn better if they can see as well as hear)
- acting as a focal point for learner response, e.g. question & answer
- adding variety to the instructional method
- providing organised pre-package content knowledge.

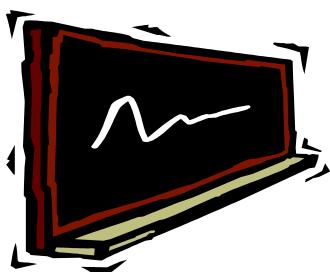
## **4.3 General points of consideration in using teaching and learning resources**

Different types of TLRs have specific considerations in their use. However, the following considerations apply to all.

- Identify what you want to achieve from the TLR (e.g. emphasis, generate questions, show a process, key point summary, etc).
- Do not overuse TLRs. Overuse will confuse rather than promote learning. Also, too much of one type will soon lose its ability to gain attention.
- Check that they work in advance. This refers to TLRs that involve the use of technology, such as overhead projectors, slides, computer, multi-media, etc.
- Be conscious of your own positioning and body movement when teaching and training. Do not obstruct the view of participants to any visual you are presenting.

## **4.4 The use of specific TLRs**

### **4.4.1 Black/whiteboards/flipcharts**

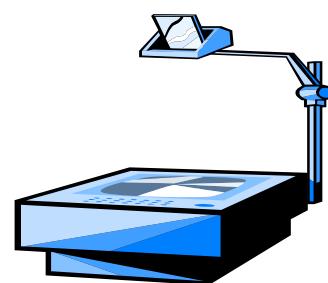


Whiteboards or flipcharts are more common today than blackboards. These are still effective TLRs. In using them, the following guidelines should be broadly adopted.

- Writing should be big and clear.
  - Writing should be 'running hand' as it is easier to read than only capitals.
  - Be conscious of your position relative to the board/chart.
- For whiteboards, it is better to use only black, blue and red marker pens, preferably of the flat/chisel nib type or medium thickness if round nib.
  - If the board is long, it should be segmented for use. This helps learners to cope in terms of pace, focus and clear view.

### **4.4.2 Overhead projection transparencies (OHTs)**

These are perhaps the most used of all TLRs. They are easy to prepare and can meet many of the purposes identified above. In designing and using OHT's, ensure that you check for the following.



- The content should fit the screen of the projector you are using.
- The font size should be clearly visible (20 points or more).
- The page should not be cluttered. Try to keep to a maximum of seven sentences per transparency or 50 words.
- There should be a clear linkage or 'sign-posting' of items on the page.

- If you use variety of font and colour, then this should be consistent and not overused. Colours that project best are black, red and blue.
- The projector should not be kept on without a transparency.
- A pointer (pencil, pen, especially designed or a laser one) should be used when referring to an item on the transparency.
- Do not block the projection with your body or hand.
- Do not change transparencies too fast. Give students time to read and/or copy.

#### **4.4.3 Supporting notes – handouts**



Supporting notes given to learners can be a very effective means of consolidating and developing learning, providing learners read them, for the following reasons.

- They provide a comprehensive account of the main learning content for a particular session/topic area.
- They can reinforce and emphasise key points.
- They are a means of revision and a guide for further learning.
- They enable teaching time to be employed more effectively by reducing the amount of note taking necessary and covering the basic factual information. The teacher can focus more on the key concepts, principles and models involved in the topic.
- Supporting notes add professionalism to the session.

##### **4.4.3.1 Points to consider for preparing ‘user friendly’ handouts or learning materials**

###### **4.4.3.1.1 When planning**

- Plan the overall structure of the materials first.
- Plan it in such a way that they do not overlap with other materials in the course.
- Ensure that the format is reader-friendly, organised and consistent.
- Provide examples to explain the material.
- Ensure all objectives you have identified have been covered.
- Plan all topics at the same time so that each flows into or connects to the next.

###### **4.4.3.1.2 When designing**

Design the learning material in such a way that students can get what they want or need from them. Since people learn in many different ways, it is good to provide a variety of access devices such as:

- contents page
- visual sign posts
- advanced organisers

- objectives
- an introduction or overview
- headings
- explanatory titles
- mind maps, concept maps & flow diagrams
- marginal notes
- summaries
- glossary
- subject index.

#### **4.4.3.1.3 When writing**

- Use a simple and informal style.
- Define technical or unfamiliar words used in the glossary.
- Avoid clichés such as “at this point in time”.
- Keep sentences and paragraphs short.
- Write in an active voice.
- Try to vary words and phraseology.

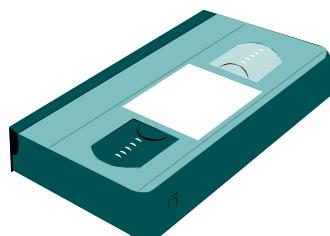
#### **4.4.3.1.4 For text formatting**

- One column layout is generally used, although a two-column design could be used to advantage.
- Text is more easily read if it is left aligned rather than justified. Research shows that it is easier for the eyes to follow the flow of words.
- Most suitable font sizes for reading are point sizes 10 to 12. Particular typefaces are easier to read at different point sizes.
- Research shows that serif fonts like Times New Roman are more readable than sans serif fonts, such as Arial, unless the space between the lines (leading) is appropriately adjusted. Arial requires greater leading than Times.
- You may wish to follow typing convention when using a left aligned format: 1 space after each word and comma, 2 spaces after a stop and colon.
- Use boldface or italics for emphasis, but don't overuse or double emphasise, e.g. emboldening *and* underlining.
- Use bullets instead of numbers for lists, except when the procedure must be performed in a specific order.
- Place diagrams and charts as close to the related text as possible.
- Positioning diagrams on the left with text on the right is easier for the brain to read.
- Headers and footers can be used effectively to give helpful information without distracting the reader.
- Footnotes are not recommended. These often distract the reader rather than help. Material considered relevant should be given as an appendix.
- Provide references if relevant.

#### **4.4.3.1.5 Making them interactive**

- Skeletal notes. This could encourage students to make notes as they listen to a lecture in a way that suits them best.
- Omitting key words or sentences. This will help to maintain attention, since the listener will want to pick up those words or sentences.
- In-text questions. These will help to make students think and work while listening to a lecture.

#### **4.4.4 Videos**



Videos can be useful TLRs in that they provide opportunity to bring into the classroom a wide variety of learning experiences that would otherwise be inaccessible. For example, things that are:

- far away
- too small
- too big
- too dangerous.

However, while a video segment can provide a wide range of interesting input to a teaching and learning situation, it must be remembered that learners have frequent contact with videos and attention span could be limited if the videos you use are not of sufficient quality. When using videos, the following strategies can enhance learning:

Stop the video after a specific sequence and ask questions.

- Provide learners with an overview of what they will be watching and some key questions that need to be answered in advance of watching it.
- Apart from commercial videos, you may find it useful to make your own video segments that specifically relate to areas of your subject content, such as machinery parts, main engine, a ship and its different sections, windlass, mooring winches, fire fighting equipment, lifeboats, etc.

#### **4.4.5 Multimedia**

Technology has made it possible to combine the text and graphics capability of the PC with high-quality sound and video. This combination of different media under the control of the PC has opened new avenues in teaching and learning. Multimedia packages can be of various types, starting from a simple presentation package containing electronic slides in place of overhead transparencies to animated and voice over ones.

These packages can also be made interactive and designed to cater for continuous assessment. Student performances can be automatically recorded and delivered to the lecturer if used through a network system. Such packages can be used as tutorial lessons which students can use without feeling shy about making mistakes and also while working at their own pace.



Some suggested multimedia programs are:

- *Microsoft PowerPoint*
- *Authorware Attain*
- *Toolbook*
- *Designers' Edge*

A *PowerPoint* presentation consists of a series of slides containing text, drawings, clipart, photographs and/or charts. Sound can be incorporated, provided the system has a sound card and speakers. Simple animated transitions can be built in.

This can then be delivered in a variety of ways:

- Show the presentation on a computer.
- Project the presentation on a screen through a projector.
- Automate the presentation and give it on a disk.
- Convert the presentation into 35-mm slides.
- Convert the presentation into overhead transparencies.
- Provide the entire presentation in an outline/skeletal form.
- Provide the slides in a miniature form choosing between 2, 3 or 6 slides per page.

## **4.5 Preparation of facilities and training aids**

It is important that preparations are made before every session to ensure that the class runs smoothly. Prepare the classroom or study area and the training aids such as audio visual equipment you will need for conducting your course or workshop.

### **4.5.1 Classroom / study area arrangements**

We would all like to work in ideal conditions with state of the art facilities. But most of the time we work in less than ideal conditions. At the UN-ESCAP Conference Centre in Bangkok we have a choice of rooms designed for conferences, seminars, workshops and meetings. The furniture cannot be moved. Not ideal classroom settings, but each room with very good logistics, built-in audio visual screens and a projector for presenting material.

When we conduct seminars and workshops at a country level we try to go a day earlier to check the venue and facilities. The facilities at national training centres or local hotels have improved over the years and we come across excellent facilities. There have been times, however, when our skills as trainers have been severely tested.

On a day-to-day basis training programmes are often conducted in classrooms which tax the patience of the trainer and the trainees. You are likely to be faced with these kinds of challenges everyday. The classroom may not be set up the way you want; wrong equipment may have been delivered; or there may not be enough space to divide the trainees into groups.

The more time and effort you put into planning, checking and follow-up with the help of checklists, the less room for unforeseen problems to crop up.

#### **4.5.1.1 Setting up the classroom**

Where there is opportunity to arrange the furniture and equipment, the setting up of the room will depend on your priorities and teaching method.

You may want the trainees to focus on the projected visuals or demonstrations.

or

You may want the trainees to focus their attention on you while you speak.

or

You may want to have small group discussions.

or

You may want the trainees to work at their own pace.

Now for some basic principles and ideas to help you to plan and organize your own classroom.

#### **4.5.1.2 Workspace**



Provide adequate space for the trainees to work. Do not make them feel pressed together and restricted whether in a classroom, study room or learning carrel (station). By following these simple rules when planning or adapting your own classroom, you will enhance the learning environment for your trainees and make your own job easier at the same time.

Overcrowding makes teaching and learning very difficult.

## **4.5.2 Audio-visual equipment in the classroom**

Ensure clear and good viewing of projected materials for all trainees.

- Place the screen as high as possible for “line-of-sight” viewing from the back of the room. Remember that some trainees will have to look over the heads or shoulders of others to see the bottom of the screen.
- Be sure the screen is of sufficient width. For viewing projected materials such as movies, slides, etc., the standard ratio of screen width to distance from the projector is a ratio of 1:6. This means you need one metre of screen width for every 6 metres length of the room. A 9-metre long room requires a minimum 1.5 metres screen. Actually, this measurement assumes the placing of the projector at the very back of the room, which is desirable in any case and necessary where there are viewers in the last row of the room. If you have a small class in a large room, you can possibly use a smaller screen if the trainees can all sit near the front. In principle, the projector should be sited no farther forward than the last row of trainees.
- Try to place the screen so it is not under a light source (especially a fluorescent light), as it will tend to *wash out* the image on the screen.
- Test the lighting in the classroom before class, to see how much you can leave on when projecting. You have much better control if there is enough ambient lighting to enable you to maintain *eye contact*.

### **4.5.2.1 Setting up**

When setting up your projectors consider the following.

- Be sure you can fill the whole screen.
- Do not put the projector where it might block someone's view.
- Place the projector so the light has a clear path to the screen so as to avoid trainees' shadows being cast upon on the screen.
- Set the screen high enough for everyone to have a clear view of it, tilted if necessary so that the plane of the screen is perpendicular to the centre line of the beam of light. This avoids the trapezoidal distortion of the image known as “keystone effect”, so called from the trapezoidal shape of the keystone in a masonry arch.
- Try to place the projectors so that trainees will hear as little as possible of the noise of their operation.

### **4.5.2.2 Distractions**

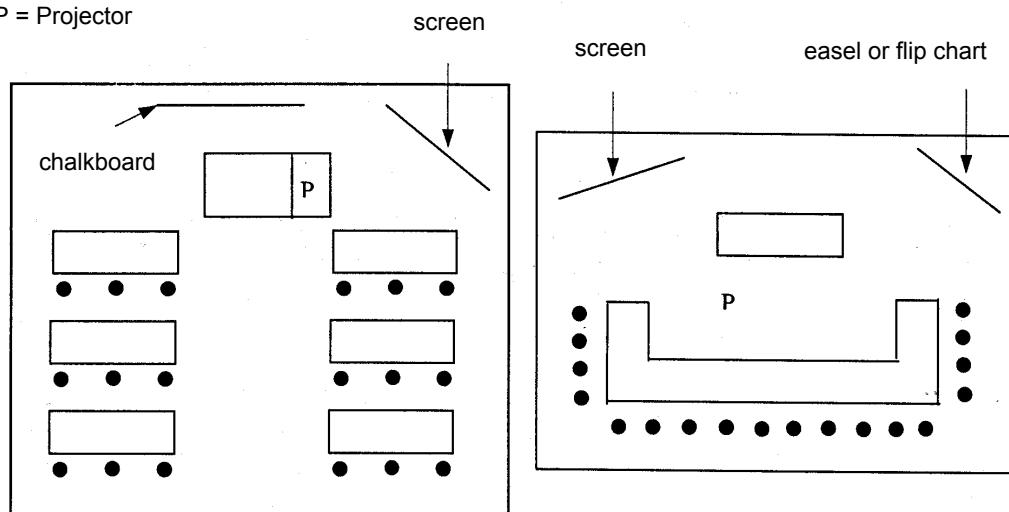
Check for distractions in the classroom. Be sure there are curtains or blinds for the windows to keep out excess light and check for any unnecessary noise within your control.

### **4.5.2.3 Layout**

Here are some examples of classroom layouts for you to consider. Bear in mind, however, that these are examples only. There are many possible choices and you will no doubt be called upon to use your imagination and ingenuity when setting up the facilities for your courses in rooms of different shapes and sizes. You may want to take a brief look at these examples and make any notes for class discussion before going on. The goal is to give trainees maximum working surface and good viewing angle for presentations.

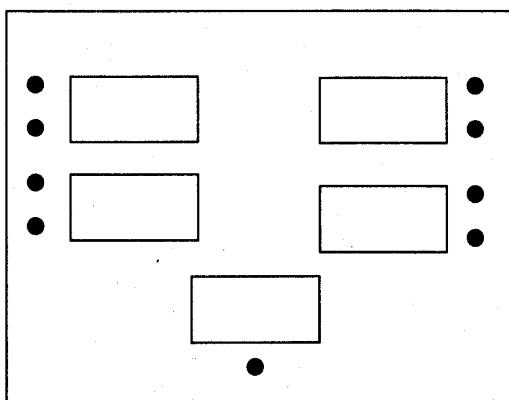
#### 4.5.2.3.1 Typical classroom layouts

P = Projector

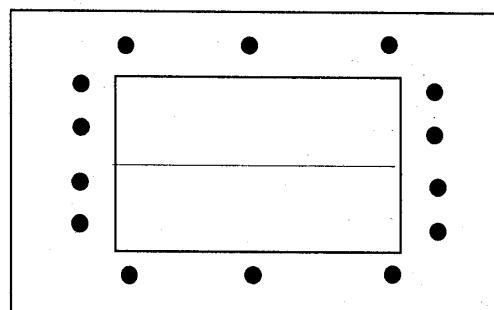


#### 4.5.2.3.2 Group study layouts

A



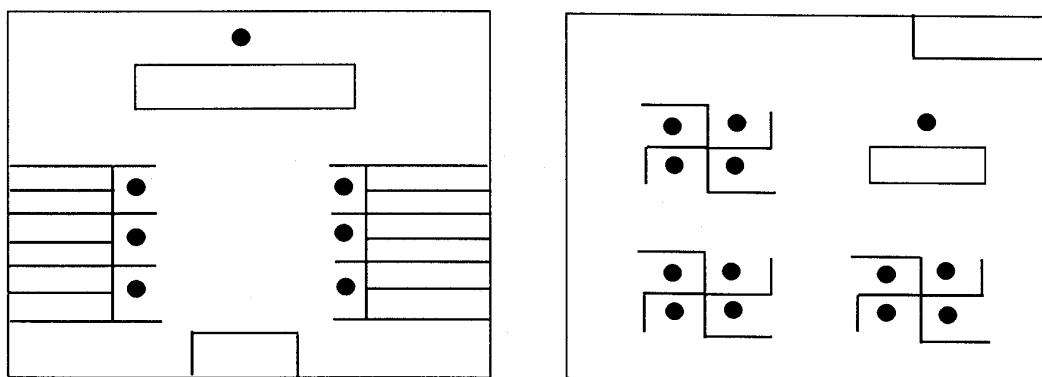
B



When a class is to be split into subgroups for discussion, this arrangement can be useful. The instructor can move about between groups and can easily get all trainees' attention for demonstration, discussion or audiovisual presentation.

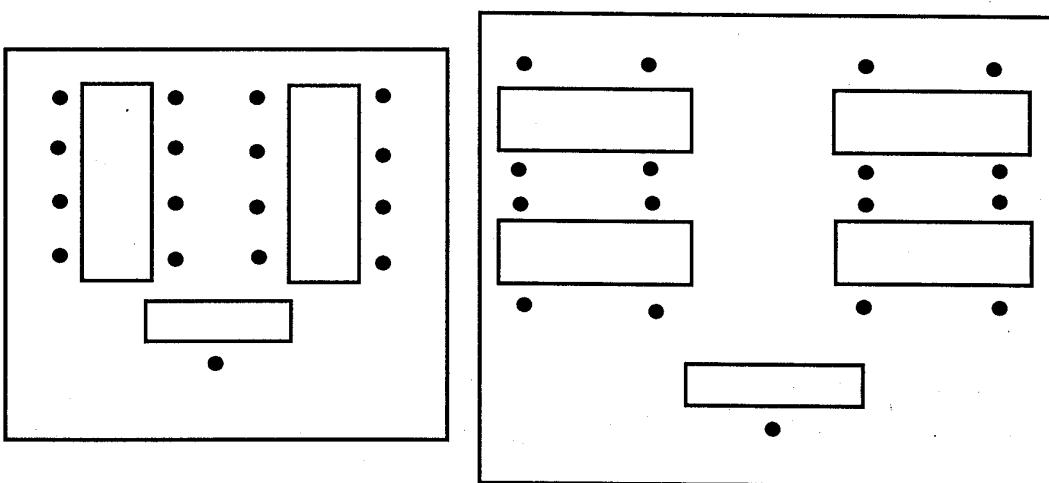
For case study (group work on techniques projects), one large square table or two tables together can be useful for sharing common sources.

#### 4.5.2.3.3 Individualised instruction layout



Each trainee works on his/her own. The instructor supervises and helps individual trainees with the problems, distributes required study material, and administers tests. Two common layouts are shown above. In each, trainees work in individual cubicles or carrels which provide a working surface, possibly a projection screen, and the required audiovisual equipment. In cases where there are no established facilities for self-paced instruction you may have to improvise, using parts of the classroom, study rooms or whatever may be available.

#### 4.5.2.3.4 Laboratory layouts



Laboratory work usually involves individual work by the trainees (or work in pairs), and the role of the instructor is mainly a supervisory one. It is often useful to be able to address the whole class, and to present visual aids. These are just two of many possible layouts.

## 4.6 Reflecting on this module



Audio visual materials can be a great help in conducting instruction. Good audio visual equipment and materials, with a proper room set up, can make the instructor's job much easier. In practice, however, conditions often fall short of the ideal: one may find the audio visual equipment poorly maintained, needs cleaning, or bulbs burn out during a presentation; trainees working along under individualised instruction sometimes "jam" slides or forget how to reload projectors or audio players.

You must be prepared for these and other emergencies and maintain your appearance of confidence and control.



### **Activity for this module: Produce a teaching/learning resource**

For this activity you are to produce and use a teaching/learning resource to support student learning for a topic area(s) in your module. This resource can include any or combinations of the following:

- a set of overhead projection transparencies
- *PowerPoint* presentation
- set of common notes
- video

The completed resource should:

- meet established standards of design for that type of resource
- relate to specific learning objectives for a lesson/module taught
- have been used and evaluated with at least one group of learners.

Course : \_\_\_\_\_

Centre : \_\_\_\_\_

Date : \_\_\_\_\_

Instructor : \_\_\_\_\_

**Teaching and learning resources (TLRs)**

- Have you planned for a variety of teaching and learning resources?*
- Have you made allowance for a variety of teaching and learning resources appropriate to your training situation?*
- Black/whiteboards?*
- Flipcharts?*
- Overhead projection transparencies (OHTs)?*
- Handouts?*
- Videos?*
- Computer based multi-media packages?*

## **Assessing Learner Performance**

|  |      |
|--|------|
| Introduction                                 | 5.1  |
| Module Objectives                            | 5.1  |
| The criteria for good assessment             | 5.2  |
| Key terms used in the language of assessment | 5.3  |
| Planning a scheme of assessment              | 5.4  |
| General Principles in test construction      | 5.7  |
| Types of assessment items                    | 5.7  |
| Preparing a marking scheme for assessments   | 5.13 |
| Pitfalls in assessment                       | 5.15 |
| Reflecting on this module                    | 5.16 |
| Module Activity                              | 5.17 |
| Instructor's Checklist No. 5                 | 5.18 |



# Assessing Learner Performance

## 5. Introduction

The assessment of learner performance is perhaps the most important part of the training process. In assessing the performance of your trainees, you are making a judgement about whether or not they have met the objectives of the module, i.e. their level of competence. The assessment process, therefore, must be conducted as systematically and objectively as possible.

One methodology is to use **criterion-referenced** tests. Criterion-referenced tests are tests where there is an unarguable, objective measure of the correctness of the answer that holds good independent of the level of the class of trainees or of the examiner's strictness. There is a single criterion for passing or failing each test. The level of success in training for a job must be independent of the average quality of the trainee.

Let us take for example the case of a trainee maintenance technician who should be able to identify 8 of the 10 (80%) possible faults in a given refrigerated container but when tested identifies only 6 of them (60%). When it is said that the trainee has identified 60% correctly, the results of a measurement are being described. This performance did not meet the criterion of 80%. The objective was not accomplished: therefore, the trainee cannot be certified as having achieved the objective.

**Final Test Scores**

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### 5.1 Module Objectives

On completion of this module you should be competent to:

- identify the criteria for good assessment
- plan a scheme of assessment
- identify appropriate assessment methods for specific learning outcomes
- design a range of assessment items
- produce a marking scheme for open-response items
- identify common pitfalls in conducting assessment.

## **5.2 The criteria for good assessment**

The most important requirements of test items are that they are **valid** and **reliable**.

### **5.2.1 Validity**

In basic terms, validity refers to the 'truth' of the assessments made. In assessing learners we are making claims to know them in the areas being assessed. It is very important, therefore, that our assessment methods measure as accurately as possible what it is we intend to measure. A valid test must, therefore, include items which:

- reproduce faithfully the conditions, behaviour and standards described in the objectives
- cover all the skills, knowledge, and attitudes described in the objective but seek to test nothing else.

In addition, a valid test must call for the type of behaviour described in the objective.

### **5.2.2 Reliability**

The reliability of a test refers to the capability of a test:

- to yield the same scores with different raters (persons scoring the test)
- to yield the same results if administered at different points in time to equally competent trainees.

A reliable assessment will measure the same thing consistently. Some assessment methods are inherently more reliable than others. For example, well-constructed multi-choice tests are much more reliable than essays.

To increase their reliability, tests should be designed in such a way that the conditions can be reproduced every time they are used. The less the test items depend on external circumstances (or on chance) the more reliable is the test.

The reliability of a test is also dependent on the quality of the instructions given to the trainee. **Instructions must always be complete, clear and unambiguous.**

Accurate assessment must be both valid and reliable. Reliability in itself is not enough. For example, an assessment method can be very reliable in the sense that the same results are consistently produced. However, it may simply be measuring the wrong things well, e.g., knowledge or skills that are not the real focus of the learning objectives. For example, a multi-choice exam may produce reliable evidence concerning trainees' ability to recall factual information, but this would not be a valid measure of practical competence.

Other qualities of a good test are:

- **balance**, i.e. that the distribution of items reflects the relative importance of the objectives to be tested
- **efficiency**, i.e. not too time-consuming to administer, and designed so that it allows for quick and efficient scoring and processing of results
- **fairness**, i.e. the test should be constructed and administered so as to give each trainee an equal chance to demonstrate his capabilities. Fairness also means that the test should encourage the trainee to use all his acquired capabilities to produce the correct response.

## **5.3 Key terms used in the language of assessment**

### **5.3.1 Summative assessment**

This refers to any assessment where final marks or grade are allocated to a learner's performance. Typically, this is related to end-of-module examinations. However, all assessments that contribute to the overall assessment mark/grade are at some stage summatively assessed in that the assessment decision is final – at least for that course.



### **5.3.2 Formative assessment**

As emphasised in this workshop, assessment is an ongoing process, closely linked to instruction, and fundamental in developing effective learning. When assessment is primarily focused on developing learning rather than making summative decisions about level of performance it is referred to as formative assessment. Formative assessment should be carefully planned and monitored in order to ensure that learners have been adequately prepared for summative assessments.

### **5.3.3 Assessment scheme**

This refers to the document that details the overall assessment strategy used for a course of study. A scheme of assessment typically identifies the following:

- when assessment is to take place
- what assessment methods are to be employed
- the marks/weighting for each assessment
- who is responsible for conducting assessments
- what resources are needed for assessments
- the conditions under which assessments are to be conducted.

### **5.3.4 Assessment evidence**

Assessment evidence refers to any work produced by learners which is assessed, whether for purposes of formative or summative assessment. This would include learners' responses in both fixed term examinations and all in-course assignments. Assessment evidence could also include witness testimonies, accreditation of prior learning, and peer assessments.

It provides the raw data about learner performance from which assessment judgements and decisions are based.

### **5.3.5 Assessment methods**

Assessment methods refer to the activities with which we provide learners in order to produce assessment evidence. Some of the most commonly used methods include, multiple-choice questions, short and long answer questions, essays, project work, case studies and practical laboratory assignments.

### **5.3.6 Assessment items**

An assessment item is any discrete part of an exam or test. It could be as small as a multiple-choice question or as large as an in-course project. While ‘assessment methods’ refer to assessment activities in the general sense, for example, multiple-choice tests, essays, etc.; ‘assessment items’ are the specific questions or tasks used.

## **5.4 Planning a scheme of assessment**

The following are the key planning decisions that must be addressed in producing a complete assessment scheme:

### **5.4.1 Why assess?**

There are many reasons why we want to assess what has been learned from a course of study. The main reasons can be categorised as follows:

- selecting and grading of learners
- maintaining standards
- diagnosing learning difficulties
- supporting the development of learning
- evaluating the effectiveness of the teaching/learning strategy.

For any course of study it is very important to clearly establish where the emphasis is to be placed for assessment purposes. However, assessment should have a strong formative emphasis irrespective of the type and purpose of the summative assessment.

### **5.4.2 What to assess?**

It is usually not possible to assess everything that is contained in a module. Therefore it is necessary to make careful decisions concerning what combinations of knowledge, skills and attitudes are to be assessed and to what level. Decisions in this area are crucial in defining what is important about the module: what is assessed must accurately reflect what is important in the module. Failure here jeopardises the validity of assessment.

It is essential that:

- careful content evaluation has been conducted to identify what is to be assessed (both in terms of product and process, and with appropriate weightings). A clear definition of ‘standard’ for the module needs to be established
- all trainers assessing on the module have a shared agreement of the standard
- procedures for systematic review and development are established and employed.

You may find it useful to construct a *table of specifications* to aid your decision making in this area of assessment planning. A table of specifications is a planning tool to ensure that the assessment items relate clearly to the learning outcomes of a course.

Furthermore, the table will help to ensure that you are using a representative sample of test items both in terms of coverage and level of difficulty.

Preparing a table of specifications involves:

- selecting the learning outcomes to be assessed
- outlining the subject content
- relating the learning outcomes to the subject matter and identifying what is to be assessed and its weighting
- building a table to reflect this process, and distributing test items proportional to the relevant cells of the table.

#### **5.4.3 How to assess?**

Having identified what is to be assessed, a real skill is involved in developing assessment items that are valid as well as promoting learning. It must be recognised that assessment is not an exact science and that all methods have limitations in terms of the *measurement* of human capability rendered. The following are key questions to ask in designing and using methods of assessment:

- Do they accurately measure identified learning outcomes?
- Is a sufficient range employed to encourage learner motivation and enable students to display competence in different ways?
- Are they fostering (wherever possible) an understanding of the key concepts, models, and principles of the subject matter?
- Do they make cost-effective use of time in generating sufficiency of evidence to infer competence?
- Is independent learning and the development of self-assessment skills encouraged where possible?
- Do they provide fair assessment situations for learners?
- Are they systematically organised into an effective assessment scheme?
- Have learners been clearly and consistently informed on all aspects of the assessment scheme: for example, timing, type of assessment, assessment specifications and the evidence that is needed to meet those specifications?

#### **5.4.4 How to interpret the products of assessment?**

Different assessment methods produce different types of data relating to learner performance. We need to consider what this is telling us in terms of learning. For example, responses to a multiple-choice test are likely to give a different picture of learner understanding or competence than observing direct performance in a simulation or conducting an experiment. It is important to recognise the limitations of the assessment methods that we are using, and to understand that any single assessment may provide only a very temporary picture of learner performance. It is for these reasons that a variety of methods and the use of formative assessment are advocated. This is not to make assessment easier, but fairer and more valid.

The diagnosis of learning is particularly significant at this stage of the assessment process. We are interested both in what individuals are learning well and in the areas where difficulty is experienced. Most importantly, we are interested in the reasons behind such performances.



It is here that the interface with teaching and learning approaches is most crucial. For example, we need to assess the extent to which our teaching/learning strategy has contributed to present learner performance. Assessment outcomes do not simply tell learners how well they have performed: they provide us with important insights about our practice as professional educators. In this way we can facilitate learning from a more informed basis and with greater individual focus.

Furthermore, though this will vary with the assessment method used, we need to guard ourselves as far as possible from subjectivity and bias in assessment. In assessment situations it is important to ensure that:

- assessment is only against the specified criteria, and in accordance with agreed marking schemes
- there is uniformity of assessment practice by trainers involved in the assessment.

#### **5.4.5 How to communicate assessment decisions to learners?**

Good feedback is a key factor in learning. The information we give to learners concerning their performance in assessment is crucial to their future learning.

It must always be borne in mind that assessment decisions are not simply grades on a piece of paper but represent judgements of worth. While it is recognised that learners perceive assessment outcomes in individualised ways, tutor grading is a major source of self-definition in the areas assessed. Many are likely to internalise the assessments we make of them. If we define them as competent, they are more likely to be confident and motivated.

Quite simply, nothing breeds success like success. The maxim equally applies for failure. How we communicate assessment decisions to learners, both in terms of what we say and how we say it, is of vital importance to subsequent learning. Furthermore, it is not simply the feedback given but the actions we take in making the outcomes of assessment useful for future learning. In order to promote future learning from the assessment decisions that we make, it is essential that:

- learners are provided with a clear explanation of the basis of assessment decisions. For example, they need to know what they have not demonstrated in the assessment and why it is important. This should be enacted sooner rather than later. Firstly, it is likely to be more prominent in both the tutor and the learners' mind. Secondly, it means that motivated individuals can start to tackle the gaps in their learning earlier rather than later.
- clear guidance is given on possible courses of action for learners to develop competence in areas presently lacking or not sufficiently established. It is not particularly useful in itself to be told that you are not competent at something or that you don't understand a particular topic. In order to transform this potentially negative state of thinking and feeling into one of achievement and satisfaction there is a need to know what to do and where to go concerning the development of learning. We are often led to feel that learning is in some way mystical, that you either 'get it' or 'don't get it', so to speak. However, it is not learning that is mystical: it is a lack of knowing and appropriate learning support that creates the feeling of mystification.

The feedback process in assessment can be an excellent vehicle to promote motivation. Firstly, by de-mystifying learning it helps learners to feel that they can become successful in their efforts. Secondly, rapport is often considerably enhanced if learners feel tutors have a genuine interest in their learning and make efforts to understand how they are performing.

## 5.5 General principles in test construction

There are some very important rules that apply to all tests, regardless of their form. When constructing **any** test, you should remember to:

- Try to design the test to reflect accurately the conditions, behaviour and standards described in the objective.
- Give the trainee clear, easy to understand instruction. To do this you should:
  - use short, concise sentences, avoiding big or unnecessary words
  - use positive statements when at all possible
  - when using negative statements (if unavoidable), bring the trainees' attention to the negative by underlining or bold type
  - avoid using trick questions as these do nothing to help the trainee's morale and tests little but his cleverness
  - arrange, if possible, for easy scoring as this will save you time and make the scoring easier for the trainee to understand.

As stated before, these rules apply to every test, and by following them; you will make your course tests a lot more accurate and more agreeable to both you and your trainees.

## 5.6 Types of assessment items

Assessment items are the 'nuts and bolts' of any assessment strategy. They are what we get learners to do in order for them to show us that they are competent in the areas assessed. Basically, assessment items can be seen in terms of two broad categories:

- **Fixed response:** where the student chooses an answer from limited options provided.
- **Open response:** where the students, to varying degrees, choose the answers they provide.

However, all assessment items share two important features:

- Design and presentation must meet high standards for that type of item.
- The item must validly assess identified learning outcomes.

In selecting the type of test and test items, the general rule is that:

- **Skills** are best tested by performance tests (the trainee performs the task described in the objective under real or simulated conditions).
- **Knowledge** is best tested by oral or written tests.
- **Attitudes** are tested by observations or performance or by means of questionnaires.

The following sections will provide a brief guide on the design and use of both fixed and open response items.



### **5.6.1 Alternate response or true-false items**

These are among the most common types of test and among the easiest to construct. The responses are simple, requiring the trainee simply to determine if a statement is either true or false. The instruction usually requires the trainee to check or **circle** the correct answer. (Don't try to trick the trainee by inserting an occasional checking of the false statement). Some examples are:

- Male employees in the Operations Department are required to work on holidays. T F
- Female employees in the Administration Department work 30 hours per week. T F
- T F Seat belts are required equipment in all company vehicles.
- T F Employees are required to use seat belts when operating company vehicles.

These are some of the most common forms. Please note that:

- the questions are all short and stated in a positive manner so as not to mislead the trainee.
- the order of the placing of the T and F is consistent. Never change their order in the responses. The trainees see it as unfair trick.
- clues to the answers are to be avoided.

**Suggestions** for constructing True/False tests:

- Consider if these tests will really test the knowledge that you want the trainee to have. Since they are so easy to construct, you may be tempted to use them when a different form of test would give a better measure of the trainee's knowledge.
- Another possibility is to provide a box after a statement and allow the trainee to write in true or false.
- Try to keep the number of true and the number of false statements more or less in balance and avoid setting a pattern.
- Take care that the statement is not one which can be sometimes true and sometimes false. Truth or falsity must be absolute.
- When scoring, it is easiest to assign the same amount of weight (value) to each item. The total value should always be 100%.

### **5.6.2 Multiple choice items (MCQs)**

MCQs often vary in format and structure but essentially provide the student with a question(s) and a choice of response answers (typically 4). Certain stimulus material such as tables, diagrams, graphs, etc may also be provided to set a context for the question(s). The learner must select his/her answer from the options. Some typical examples of the format of these test items are:

### **5.6.2.1 Check the correct answer:**

*Attendance is recorded on form:*

1321

2721

1001

*Employees must obtain new identification cards every:*

1 year

2 years

3 years

4 years

*Vehicle maintenance is performed by the:*

contractor

motorpool

employee

### **5.6.2.2 Circle the correct answers(s):**

*The personnel director has the right to:*

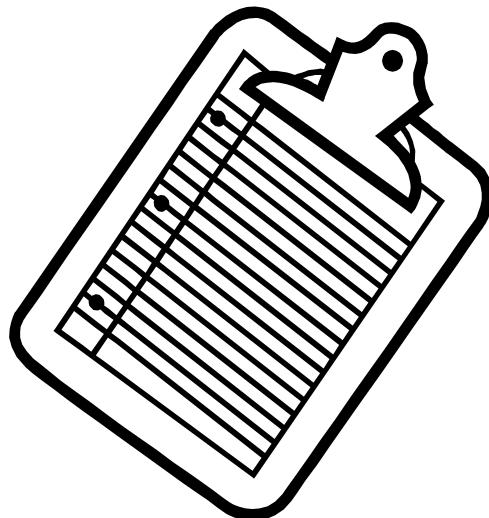
- a. analyse company profits
- b. decide company policy
- c. supervise office cleaning
- d. negotiate salary increases

### **5.6.2.3 Suggestions for designing multiple choice tests**

The following is a summary guide for designing and evaluating individual MCQ items:

- Is the question within the syllabus and table of specifications?
- Does it test appropriate abilities and exclude, as far as possible, irrelevant ones?
- Is the question at the correct level of difficulty?
- Is the question clearly presented?
- Is the question as precise and unambiguous as possible?
- Is all necessary information provided?
- Is the question presented in the best possible manner?
- Is the key arguably correct and the distracters arguably incorrect?
- Are the distracters plausible to the level of learners being assessed?
- Is the question free of clues?
- Are the grammar, spelling, terminology, abbreviations and units correct?

(Adapted from Ward, C., 1981, pp. 140-1, 'Preparing and Using Objective Questions')



#### **5.6.2.4 Uses and limitations of MCQs**

***MCQs are very popular as a means of assessment. If well designed they provide:***

- a strong objective base for assessment in that the answers are, in most cases, clearly correct and marking is free from the subjectivity involved in other assessment methods
- ease of marking, as test papers can be quickly processed, especially with electronic marking systems
- a high level of reliability
- a cost-effective method of assessing a wide range of learning abilities.

However, as with all assessment methods, MCQs have limitations as a complete approach to assessing learning. For example, they are not particularly appropriate for assessing:

- skill applications, whether technical or human communications
- complex activities that require a number of interrelated abilities and skills
- attitudes, dispositions and values
- creativity.

#### **5.6.3 Matching items**

Matching tests could be considered as a group of multiple choice items combined together but having a single set of responses. This form of tests is not used as frequently as true-false or multiple choice and is usually **more difficult to construct and score**. A typical example of a matching test is:

**Show the number of the activity recorded on the forms listed in column A through D.**

- |                                     |                                  |
|-------------------------------------|----------------------------------|
| <input type="text"/> A. Form E 1021 | 1. Accident (on the job) report  |
| <input type="text"/> B. Form E 1082 | 2. Accident (off the job) report |
| <input type="text"/> C. Form A 720  | 3. Hazardous condition report    |
| <input type="text"/> D. Form B 681  | 4. Absence report                |
|                                     | 5. Sick leave report             |
|                                     | 6. Vehicle damage report         |

Note that there are more possible answers than requested. Were there the same number of answers, the trainee who only knew three of the four answers would automatically get the fourth correct.

##### **5.6.3.1 Suggestions for designing matching questions**

- Place all parts of the question and matching items on the same page to avoid confusion.
- Keep the directions simple and the letters and corresponding numbers clear. (Use all capitals for one set and numbers for the other.)
- Never use the same number of items in both columns **unless** a response is used more than once. If a response is to be used more than once, include that in your instruction e.g.: "Each answer in column B can be used more than once, or not at all."
- Keep the columns as short as possible.
- Keep the scoring as simple as possible.

### 5.6.4 Completion type items

This form of test is commonly used to measure familiarity with rules, procedures, formulas, etc. It requires the examinee to complete a statement in which a critical or unique element is missing. Some examples are:

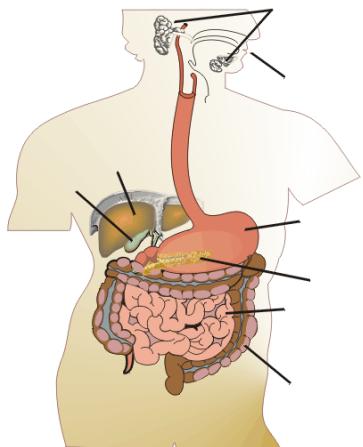
1. Fill in the missing word(s) in the following statements:
2. New employees have \_\_\_\_\_ days to enrol for insurance.
3. Correctly written objectives have \_\_\_\_\_ elements.
4. The elements (parts) of a training objective are \_\_\_\_\_

(Notice that there is a single line here, to avoid giving clues to the answer to number 2.)

5. As voltage across a resistor decreases, the current value through it \_\_\_\_\_.

These are just a few of the many varieties of completion tests. They, too, take longer to construct than true-false or multiple choice, but if constructed properly provide the trainee less opportunity to guess at answers or look for patterns in the test.

In the diagram below, write in the names of the body parts indicated by the lines.



#### 5.6.4.1 Suggestions for designing completion type items

- When possible put the blanks toward the end of the sentence for ease in scoring.
- Make blanks the same length if possible. (The trainee cannot then look for clues to the length of the missing word.)
- Avoid using a blank for each missing word when there are more than one. This too can provide clues.
- Avoid statements from assigned reading. Mere rote learning or memorisation should be discouraged. Rather, test application of learning.
- Avoid ambiguous statements.
- Avoid “giving away” the answer to one question by providing it in the statement of another question, e.g.:
  - A. The inventor of polio vaccine was \_\_\_\_\_.
  - B. Dr. Salk invented polio vaccine in the year \_\_\_\_\_.

This example may be obvious, but trainees are alert to any small clues you may inadvertently give them.

### **5.6.5 Essay type items**

An essay test can call for either a short response to a question (one or two sentences), or require a long written response such as describing some activity or piece of equipment in detail. It can also be a report similar to the one trainees may have to prepare on the job. Some examples are:

- (25 pts) 1. Given the description of the Asiana training centre, describe in one page or less how you would set up classroom A to show a film to 17 trainees. Include in your description:
- A. When you would order equipment.
  - B. What you would order.
  - C. How you would seat trainees.
- (10 pts) 2. Complete Accident Report E 107 based on the case study provided. You have 10 minutes to complete the form.
- (10 pts) 3. Describe, in your own words, how you measure the legibility of a piece of artwork. The description should be in 200 words or less.
- (40 pts) 4. Prepare an essay on the value to your training centre of individualised instruction (self-paced). Describe the circumstances in which it works effectively and identify obstacles that will hinder this kind of training. Limit your essay to 4 pages. You have 1 hour to complete the task.

#### **5.6.5.1 Suggestions for designing essay type items**

- Give complete, concise directions. This will save many questions later.
- When possible, establish for the trainee:
  - Length of essay answer
  - Amount of time to complete the task
- If the test includes essay items or is made up entirely of essay items you should let the trainees know the value of each item so that they can apportion their time to the best advantage.
- Try to keep scoring simple. When preparing the test item, determine its value in relation to others based on the amount of knowledge, time and effort it requires. Scores should total 100%

#### **5.6.5.2 The use and limitations of essay test items**

The main advantage of essay testing as compared with objective testing is that it provides a means to assess a wide range of higher level cognitive abilities. For example, such items can assess students' ability to:

- analyse relationships
- compare and contrast options
- identify assumptions in a position(s) taken
- explain cause-and-effect relations
- make predictions
- organise data to support a viewpoint
- point out advantages and disadvantages of an option(s)
- integrate data from several sources
- evaluate the quality or worth of an item, product, or action.

However, there are three main limitations to essay type items:

- They take a long time to mark.
- It is difficult to establish marking criteria that can be applied consistently by markers. Subjectivity is a major concern with essay type items.
- Fewer essay items can be used as compared to objective tests.

### **5.6.6 Performance tests**

Performance tests are the most authentic form of assessment as they measure direct competence in real world situations. A performance test is one that directly measures identified learning, focusing on the actual competence displayed in the performance. A driving test is a typical example of a performance test: the examinee is tested on real driving performance in context, i.e. on the road.

#### **5.6.6.1 Uses and limitations of authentic/performance-based assessment**

Performance tests enable assessment to:

- be more valid because the focus is on real life performance
- measure a range of complex skills and processes in real-world or authentically simulated contexts
- link clearly with learning and instruction in a planned developmental manner
- motivate learners through meaningful and challenging activities.

However, there are certain constraints in using performance based tests, in that:

- unlike many traditional pencil and paper tests they demand considerable time in the assessment process
- some courses focus predominantly on the acquisition of knowledge and understanding rather than on actual performance applications
- professional judgement is often very significant in making assessment decisions and this can lead to problems of subjectivity and bias.

### **5.7 Preparing a marking scheme for assessments**

Having a well designed and accurate marking scheme and scoring system for the assessments that learners complete is essential to the assessment process.

For MCQs this is a simple process of tabulating the number of correct scores on test items. However, as assessment items become more complex it is necessary to identify what exactly is going to be assessed from the activity and what allocation of marks are to be apportioned to various components.

Once it is clear what areas of performance are to be assessed, clear criteria need to be established. These *performance criteria* define the key attributes – whether knowledge, skills or attitudinal components – that are to be assessed.

Performance criteria can then be organised into a marking scheme for that assessment. This then becomes a checklist for assessing the performance of the learner.

Consider the following example of a simple performance test.

### Example

---

a) Instructions to trainee:

- Performance to be tested: to light a match
- Instructions: You will find in front of you a matchbox. Take one match, light it and let it burn half way down. Blow it out and dispose of the match. You will have 3 minutes to do this.

b) Conditions (for the instructor/ test administrator)

A full matchbox and an empty ashtray should be placed on the table in front of the trainee. The trainee shall be given the written test question. The instructor shall ask the trainee to read the question and be told to "Start now." The instructor will then observe, time and score the performance according to the scoring key below.

c) Scoring key (for the instructor/ test administrator)

(20 pts each question or item)

|   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| 1. The trainee takes a match and <b>closes the box</b> .      | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. He lights the match striking it <b>away from himself</b> . | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. He avoids <b>burning himself</b> .                         | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. He blows out the match and <b>puts it in the ashtray</b> . | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. He completed task in the allotted time.                    | <input type="checkbox"/> | <input type="checkbox"/> |

Checklists can vary in format but essentially they should all provide a breakdown of important procedures or operations in an assessment activity. For each component of the checklist there will be a statement or example of competent performance and, if marks are allocated, a mark weighting so that:

- marks allocated reflect the knowledge and abilities which the assessment activity requires the learner to demonstrate
- adequate provision is made for acceptable alternative answers (if appropriate)
- the scheme is sufficiently broken down and structured to allow the marking to be as objective as possible.

## 5.8 Pitfalls in assessment

There are a number of pitfalls in assessment that can affect how fairly and validly we assess learners. The following problems are rarely prevalent with objective test items, but are significant concerns when assessing assignments that involve professional judgement on levels of competent performance, e.g. essays, project work, presentations, etc.

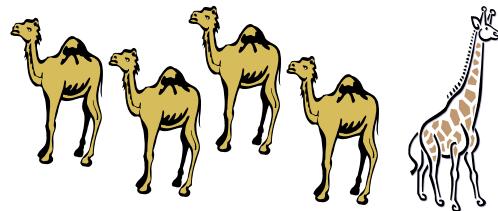
The following are some typical pitfalls that need to be avoided as far as is possible:

### 5.8.1 The halo effect

This is where our existing conceptions of a learner's work affect subsequent marking. For example, if we are used to a high standard of work from a student we may develop a tendency to over-mark future poorer work. The converse is also true in the case of students who are generally perceived as less able.



### 5.8.2 Contrast effect



This arises when outcomes of an assessment are affected by comparing a particular learner with the preceding one whether the work is good or bad. For example, if we have just assessed several weak assignments and are then presented with a quite well presented one, there is a danger of giving it more marks than it perhaps really deserves.

### 5.8.3 Assessing progress and effort rather than achievement

This occurs when an assessor is distracted by the efforts and progress a learner has made, rather than focusing on the actual attainments in relation to the learning outcomes and assessment criteria.

### 5.8.4 Lack of clarity with the marking scheme and the standard required

This is a common problem, resulting from not being sure about what to assess and what allocation of marks to make to parts of the assessment activity. It is essential that assessors are familiar with the learning outcomes and the type and standard of learner's performance relating to the assessment.

### 5.8.5 Discriminatory practices

In assessment, as in other situations, this occurs when the assessor discriminates – either positively or negatively – in relation to a learner because of race, gender, creed, sexual preference or special needs. Care needs to be taken to ensure that learners receive fair and equal opportunities during their assessments.

## **5.9 Reflecting on this module**



This module has provided you with an understanding of the range of assessment methods which you may incorporate in your training. The criteria for good assessment has also been clearly identified. This will provide you with a guide in ensuring that the assessment mode you have chosen is both valid and reliable. In the next module, we will take a closer look on the issues concerning evaluation of teaching and learning.



### **Activity for this module: Produce a range of test items**

For this activity you are to produce a range of test items to assess student learning for a module you teach. They are to cover the following:

- a multiple choice item
- a short answer item
- a long answer item (essay type question/performance test)

Items must meet established design considerations for that type of item (as identified in this module).

The specific learning objective(s) assessed by each item must be clearly identified.

Produce a valid and practical marking/scoring system for the open response items (short and long answer questions).

**Over the page is a checklist that you can use to help complete this exercise, and to use when developing any assessment tool.**

Course : \_\_\_\_\_ Centre : \_\_\_\_\_

Date : \_\_\_\_\_ Instructor : \_\_\_\_\_

**Making the most of the assessment process**

In preparing your assessment tasks have you ensured that they:

- Are valid and reliable?*
- Reflect the stated objectives?*
- Provide a variety of assessment methods such as:*
  - Multiple choice or true/false?*
  - Short answer?*
  - Extended answer?*
  - Essay?*
  - Oral response?*
  - Project?*
  - Case studies?*

**Making the most of the assessment process**

Does your assessment test a mixture of:

- Knowledge?*
- Skills?*
- Opinion/ideas?*

## **Evaluating Teaching and Learning**

|   |      |
|---|------|
| Introduction  | 6.1  |
| Module Objectives                                     | 6.1  |
| What is evaluation?                                   | 6.1  |
| What aspects of the course are to be evaluated?       | 6.2  |
| Types of evaluation                                   | 6.2  |
| Collecting evaluation data                            | 6.3  |
| Responding to significant feedback from evaluation    | 6.4  |
| Preparing end of course report                        | 6.5  |
| Identifying and planning instructor's own development | 6.7  |
| Reflecting on this module                             | 6.7  |
| Module Activities                                     | 6.8  |
| Instructor's Checklist No. 6                          | 6.10 |



# Evaluating Teaching and Learning

## 6. Introduction

Having completed the previous modules, you will already be very aware of the importance of evaluating your teaching as a means of continuous improvement.

In this module we will consider in more detail the importance of evaluating teaching and learning and the various ways this can be carried out.

### 6.1 Module Objectives

Upon completing this module, you should be able to:

- identify different types of evaluation and evaluation data
- conduct an evaluation of a module
- prepare an end of course report
- identify and plan self development needs as an instructor.

### 6.2 What is evaluation?

Evaluation is essentially concerned with judging the worth or value of an activity or event. This is usually with a view to identifying ways in which such activities or events can be improved in future. However, evaluations can equally lead to decisions to terminate existing activities. An evaluation should seek to:

- identify and illuminate what is actually occurring in the area or activity that is the subject of evaluation, and
- produce sufficient information to enable the evaluator, using agreed criteria, to make valid and useful judgements about what is being evaluated.



When evaluating the performance of your class, you are measuring them against the standards for satisfactory performance provided in your course material, especially the course objectives.

In teaching and training, there are many areas and aspects of practice that can be the subject of evaluation. For example, it is possible to conduct large-scale evaluations of whole course programmes. Equally, evaluation can focus on very specific, one-off activities such as a single lesson or even the use of particular learning materials in a lesson.

In conducting an evaluation of a course you teach, you will need to consider very carefully the following questions.

- 1 What aspects of the course are to be evaluated?
- 2 What type and methods of evaluation are to be used to obtain relevant information?
- 3 What needs to be done in response to significant feedback from the evaluation?

### **6.3 What aspects of the course are to be evaluated?**

There are many aspects of a course that can be the focus for evaluation, for example:

- appropriateness of objectives for the learning group
- organisation and sequencing of content
- effectiveness of the instructional methods
- quality of teaching and learning aids used
- validity of assessment methods used
- the performance of students on the course.

The areas that are to be the focus of evaluation are usually identified by the course planning team. However, there may be occasions when you want to evaluate a particular aspect of your teaching or when you need to address a particular problem, for example, poor student performance.

### **6.4 Types of evaluation**

In conducting an evaluation, there are different aspects of the course about which information can be collected. For example, we can collect information relating to any or all of the following:

- how the course was received by learners
- how well learners actually performed on the course
- how well learners are performing in the real world of work after completing the course.

Information about these aspects of the course and the learners may provide insight into the effectiveness of the course. For example, students may have liked the programme, but are not performing as expected in their work roles. This insight provides you with the opportunity to look at the programme again, realising always that the information you receive from an evaluation may only give you certain indicators of success or otherwise of the course. Data from evaluation needs to be interpreted critically.

## 6.5 Collecting evaluation data

There are many methods that can be used to collect information when conducting an evaluation, including questionnaires, interviews, analysis of data, such as test scores or observation of performance.

These different methods will often provide quite different types of data relating to the evaluation. For example, while questionnaires are easy to administer, can cover a large sample and can obtain factual data, they rarely provide much insight into *why* events occurred as they did or *why* certain opinions were formed. In contrast, interviews offer more depth and insight, but are much more time consuming and therefore often difficult to conduct with more than a small sample.

In conducting an evaluation, decisions need to be made about what types of data are most necessary for the purpose of the evaluation.

### 6.5.1 Sources of evaluation data

#### 6.5.1.1 Feedback from learners

As learners are on the ‘receiving end’ of your teaching or training, their experiences are particularly useful in terms of course evaluation. Information from learners can be derived in a number of ways, such as:

- a questionnaire with a variety of questions and approaches, for example, pre-coded or open-ended questions
- interviews with learner groups, conducted by you or an external agent
- ongoing dialogue with learners during sessions.

The system of gathering feedback from learners must be structured in such a way that **confidentiality is maintained** and students are assured that they will not be penalised if the evaluation is not positive or if they are critical of a course or teacher.



Be willing to discuss the effectiveness of your lessons with the learners. If your lessons are very good, you may get feedback that proves your success and encourages you. Or feedback may help you improve your lessons, even if they are already very good.

#### 6.5.1.2 Learner performance

While student performance may or may not be related to your teaching competence, how well students perform is central to evaluation. If students are not meeting the course objectives or are under-performing in comparison with other student groups, there is a need to know why and make any necessary changes. Understanding how learners are learning – or indeed *not* learning – can be an invaluable source of feedback for planning our teaching strategy.

The following approach is recommended in **evaluating test scores**:

- Accurately record trainee and class (average) scores at the end of each module or part of module.
- Compare class results against the standards provided for each module or part of module in your Instructor Guide.

- If the class is falling below, or barely meeting standards, determine what objectives and sub-objectives are being missed by most of the class. Make notes for later analysis.
- Check to see if only a few trainees are responsible for bringing the class average down. Again, note what objectives and sub-objectives are being missed by these trainees and summarise these in your notes for later analysis.
- If the class is achieving or surpassing standards, **you must still check for trainees who are falling below acceptable performance**. Again, summarise the objectives or sub-objectives being missed by individual trainees for later analysis.

This information will not in itself provide the reasons for the student performances obtained. You are likely to need to access other sources of information, for example, feedback from the learners.

#### 6.5.1.3 Self-evaluation

It is important that you can look critically at the module you are teaching and gain insight into what is working well and where improvements are needed. In Module 2, 'Lesson Planning & Preparation', we pointed out the need to evaluate lessons as a form of ongoing evaluation and means of improving teaching. If this has been done consistently, you are likely to identify problems early in the module and made necessary adjustments to the management of the programme.

In evaluating lessons, the following questions are a good starting point:

- *What did I do in this lesson that worked very well in terms of student learning, and why was it so effective?*
- *What am I least happy about in this lesson and why?*
- *What might I do next time I teach this lesson?*

### 6.6 Responding to significant feedback from evaluation

Once you have obtained feedback from the students, your colleagues or from yourself, you need to analyse it carefully to determine exactly what message the data is offering you. For example, good or poor student feedback may say as much about how students like the subject, the timing of your class and your personal popularity, as it does about specific areas of teaching competence. Similarly, student performance may say more about the prior competence of students and recruitment to the programme than your efforts as a teacher. It is important, therefore, to interpret evaluation data carefully.

Once you are confident that you have identified any genuine concerns related to a course, you need to identify viable strategies for tackling the problem and bringing about improvement. However, it must be borne in mind that you may not have the time or resources available to bring about all of the changes or improvements you would like. For example, you may find that some learners lack a range of basic skills that are assumed as a prerequisite for your module. While you might be able to provide a range of remedial support, it may not be possible to meet the need fully.



### **6.6.1 Typical concerns or problems that emerge from course evaluations**

There are many things about your course that may emerge from evaluation. The following list reveals some typical difficulties that emerge during evaluation.

- Students find certain objectives too difficult to meet.
- Some objectives are outdated.
- Course materials are not sufficiently comprehensive.
- Certain parts of the course materials are confusing.
- Students find some aspects of the instructional methods uninteresting.
- Parts of the assessment are not fully testing certain learning objectives.
- Some assessment items are not clearly constructed.

However, if you have put into practice what the previous modules have sought to promote, it is unlikely that your problems will be too severe. Furthermore, if you are doing some form of evaluation on a regular basis, you should be identifying areas of concern before they become significant learning problems for students.

## **6.7 Preparing end of course report**

Once the course is completed, it is your responsibility to provide clear and accurate feedback on the results of the training to the other members of the team. This feedback is critical to the development course. By comparing the data they receive from you with the results from other instructors, adjustments can be made in the course content, media and methods of instruction.



### **6.7.1 Content of report**

The important points to remember when preparing your report is that it should be **accurate, concise** and include **supporting data**. It must be a clear summary of your analysis of three important sources of information:

- *the instructor notes you made while preparing and conducting the course*  
These should include: unusual conditions or experiences affecting the results of the training; changes made in methods, media and content, including the reasons for the changes and the results of the changes.
- *trainee/class test results*
- *trainee course evaluation results.*

As the course instructor, you are the only one who can properly organise and analyse this data while drawing on your own experience with the class.

## **6.7.2 Format of report**

Although there are no prescribed forms for this report, there are guidelines for its format. An end-of-course report should consist of three parts:

### **6.7.2.1 Narrative summary**

This should be the first page(s) and consist of:

- your comments on the overall results of the course and any unusual conditions that might have affected the training
- references to specific modules that went specially well or poorly and the reasons you feel they have these results
- a summary (by module) of changes you made in methods or media, including the reasons and the results
- a brief summary of the trainees' reactions to the course, including specific references to modules that went specially well or poorly
- any suggestions for changes in any modules (methods, media, schedule or content) and your reasons.

### **6.7.2.2 Supporting test data**

This should be a separate page, attached to the summary, detailing:

- individual trainee scores by module
- average class results by module. This is simply the total of all trainees' scores for the module, divided by the number of trainees.
- the prescribed 'passing score' for each module
- brief relevant comments about the scores or trainees  
This should support comments in the narrative summary.

This information is most clearly presented in matrix or graph format, so you may wish to devise your own form.

### **6.7.2.3 Supporting trainee course evaluation data**

This is a brief summary of the trainees' evaluation of each module. The simplest way to provide this information is to provide a summary opinion questionnaire for each module. This should include:

- a total of the responses on the training activities and usefulness of module
- a statement summarizing trainees' opinions on the module, which should reflect your analysis of the trainees' comments.

## **6.8 Identifying and planning instructor's own development**

In conducting an evaluation, you will identify areas in which you need to improve your competence as an instructor. Teaching involves continually learning. In planning and implementing future professional development in teaching and training, you will need to address the following questions:

- What are the specific competencies I need to develop?
- What are my options in terms of opportunities to develop these competencies? For example, attending a training workshop, observing a colleague who is particularly competent here, continued practice in using these competencies, etc.
- How will I monitor and evaluate my progress towards achieving these goals?
- What indicators will I use to determine success in relation to these goals?

## **6.9 Reflecting on this module**



This module has provided you with a framework to guide you in evaluating the training you have conducted. In this module, you have been introduced to the different types of evaluation and the various sources of evaluation data. The checklist at the end of this module provides you with useful pointers in carrying out your evaluation. In the next module, we will scrutinize the issues of course development, validation, implementation and evaluation.



### Activity 1 for this module: Identifying future development in teaching competence

For this activity, you are to reflect on your present teaching competence, identifying both the competencies you have developed and areas you might want to develop further.

In order to help your reflections use the matrix below.

(NB: It is not necessary to make entries in each section. Make entries that you feel reflect real development and what you want and intend to do in the foreseeable future.)

| Teaching Competencies                  | In what ways have I improved my competence in this area/<br>What areas do I need to develop further? |
|--|--|
| Lesson planning and preparation        |  |
| Using a range of instructional methods |  |
| Developing teaching/learning resources |  |
| Developing and conducting assessments  |  |
| Evaluating own teaching                |  |



## Activity 2 for this module: Evaluation of a lesson

In Module 2, Lesson Planning & Preparation, you were asked to produce a **structured lesson plan** for a lesson you were to subsequently teach. In this activity you are to teach and evaluate the lesson planned, using the template provided below:

***The checklist over the page will assist you in completing this activity and will provide you with guidance for creating your evaluation instruments.***

| Evaluation of Lesson   |  |
|--|--|
| What components/aspects of the lesson did not work out as planned and why?   |  |
| What were the most effective components/aspects and why?                     |  |
| When I teach this session in future, what modifications will I make and why? |  |

Course : \_\_\_\_\_

Centre : \_\_\_\_\_

Date : \_\_\_\_\_

Instructor : \_\_\_\_\_

**Evaluation**

In evaluating each lesson have you identified and thought about:

- those parts of the session that went well?*
- those parts of the lesson that failed?*

In evaluating each lesson have you identified and thought about:

- the students' reaction?*
- the students' results?*
- the students' performance when performing in the 'real' world?*
- the opportunities for students to provide feedback?*
- your own feelings about what went well and what went badly?*

In evaluating your lesson/course have you written down any changes you might make if re-teaching the course?

## **Course Development**

|                              |     |
|------------------------------|-----|
| Introduction                 | 7.1 |
| Module Objectives            | 7.1 |
| What do we mean by a course? | 7.1 |
| Developing a course          | 7.2 |
| Reflecting on this module    | 7.5 |
| Instructor's Checklist No. 7 | 7.6 |



*Train the Trainer*

---

*Training Fundamentals*

# **Course Development**

## **7. Introduction**

This manual on training fundamentals is to enable you to become an instructor in the course on freight forwarding, multimodal transport and logistics management being developed by UN-ESCAP. The team of course developers have thus designed this manual for the specific purpose of helping you to develop your competence in the area of teaching and training. At some stage, however, you may need to develop a course to meet the needs of learners you teach, and this will require a clear understanding of the methodology used in course development. You may also need to revise a course, or adapt it to suit the special circumstances of the industry or academic environment in your country.

In this module, we will provide a brief, structured guide to help you to develop a course.

### **7.1 Module Objectives**

Upon completing this module, you should be able to:

- identify the processes involved in the development of a course
- enumerate the different phases involved in the course development process

### **7.2 What do we mean by a course?**

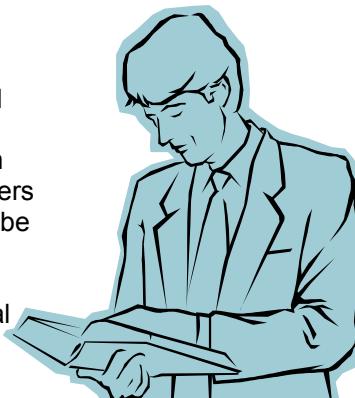
In the most basic sense a course is a planned learning experience for an identified group of learners. This may involve anything from a three-year undergraduate degree in maritime management to a six-week induction for a new navigational device. Courses, in fact, can vary greatly in terms of scope, duration and mode of delivery. For example, an increasing number of courses are available as flexible online distance learning programmes.

However, no matter what course you are thinking of developing, the following broad essential questions/areas must be carefully addressed:

- Who is the course for?
- What are the aims and objectives?
- What will be the content and structure of the course?
- How will the course be delivered and managed?
- What resources are needed to support the course?
- How will learning be assessed?
- How will the course be evaluated to gauge its effectiveness?

### 7.3 Developing a course

The methodology for addressing these broad questions/areas is outlined in this module. It is based on the UNCTAD Training Development Guidelines (TDG) which promotes collaboration between a team composed of subject matter experts, course developers and technical specialists where the end result would be an excellent course meeting a specific need of the industry. Based on an approach called *the systems approach*, the methodology consists of three principal activities: *analysis, design and production, and evaluation*, with feedback between them.



These activities are broken down into nine phases, as follows:

|                                |         |                                      |
|--------------------------------|---------|--------------------------------------|
| <b>Analysis</b>                | phase 1 | Preliminary study                    |
|                                | phase 2 | Job analysis                         |
|                                | phase 3 | Population analysis                  |
| <b>Design &amp; Production</b> | phase 4 | Design and curriculum                |
|                                | phase 5 | Design of modules                    |
|                                | phase 6 | Production and developmental testing |
| <b>Evaluation</b>              | phase 7 | Validation and revision              |
|                                | phase 8 | Implementation                       |
|                                | phase 9 | Evaluation                           |

The nine phases involved in this methodology is briefly explained below.

#### 7.3.1 Phase 1: Preliminary study

Training is normally recommended as a result of some change at the workplace. The following could cause these changes:

- new developments taking place in the particular industry
- new equipment
- re-organisation
- policy changes
- change in the workforce
- performance problems.

This phase of course development is designed to develop answers to the following questions:

- What exactly is the problem which training is expected to solve?
- What causes it?
- What could be the training solutions?
- Are there any other management actions needed to make the training effective, including the provision of necessary resources?

By the completion of this phase, as a result of this analysis by the Course Development Team, the person in charge of human resource development will be in a position to make a balanced management decision as to whether this training approach is justified and, if so, what resources are required for the development of the course package.

### **7.3.2 Phase 2: Job analysis**

The job is analysed systematically in order to determine the performance requirements, and from this analysis the skills, knowledge and attitudes required for good job performance are defined. The importance of each task is determined in order to set training priorities and economize on the resources used. Standards of job performance are also defined at this stage.

### **7.3.3 Phase 3: Population analysis**

This phase answers the question “How many people need training?” “What do they already know?” and “What kind of people?”

Information is gathered on the intended trainees: their educational background, preferred modes of learning and, in each of their tasks, how much knowledge and skill they already have.

### **7.3.4 Phase 4: Design of curriculum**

As a course is a planned learning experience designed to meet identified training needs, it must have specific *performance objectives* which directly relate to the desired competence needed in the work role. Phase 4 seeks to identify each of the skills that are to be taught and specify what level of performance will be expected of the trainee at the end of the course.

*Mastery tests* are then designed which will allow the instructors to observe and measure whether each skill has actually been acquired, or the knowledge gained. These tests may take the form of simulated performance in the training centre, exercises, games, etc.

Where on-the-job training is needed to achieve and test a skill, this is also specified. Job aids, such as checklists which the trainee will use on the job, are also specified.

This phase also involves sequencing of the training objectives and grouping them into training modules to form a curriculum. Course programmes may be divided into a number of self-contained units or modules. In many cases learners can achieve certification for individual modules, as well as for completion of a whole programme.

In designing a course with a modular format, it is important to identify and make decisions in relation to:

- the number of modules to be included – compulsory and optional
- the relationship of modules to each other
- the organisation and sequencing of modules.

### **7.3.5 Phase 5: Design of modules**

In this phase a detailed plan of the content and training activities for each module is designed.

For the first time in the process, the detailed content of each of the subjects which have been identified as necessary is now considered, as well as the mode of delivery and instructional methods to be used. Only those areas which are relevant to achieving the required performance are included, *thus substantially cutting training time and resources used*, in comparison with the traditional method of considering the detailed syllabus first.

This design process involves the following:

- organising and sequencing the module content in a clear and logical structure, whereby knowledge and skills can be systematically developed
- deciding on appropriate modes of delivery, training techniques and activities to meet the specific performance objectives for the module.

### **7.3.6 Phase 6: Production and development testing**

This involves decisions about what types and amounts of resources are needed to ensure that participants have good opportunities for effective learning. Resources can involve a wide range of areas, from training personnel, equipment, technician support, specialist rooms to teaching/learning materials. Failure to plan, budget and ensure access in this area can prove costly to the effectiveness of the programme and learner satisfaction.

At this stage, the training materials are produced to guidelines and standards on format, readability, visual aids, and all other relevant factors.

Detailed lesson plans for the guidance of instructors, trainee handouts, audio-visual material, etc., are all prepared ready for the initial test of the course.

### **7.3.7 Phase 7: Validation and revision**

The first delivery of the complete package is carefully monitored to ascertain whether the trainees achieve the *performance objectives* that were set.

Trainee and instructor opinions are recorded. Tests before, during and after completion of the course are compared and revisions, if any, are made to rectify defects or deficiencies.

If necessary a further delivery of the course takes place before it is considered to have been validated.



### **7.3.8 Phase 8: Implementation**

Arrangements are made in this phase for the course to be delivered regularly.

### **7.3.9 Phase 9 : Evaluation**

The long term effectiveness of the ongoing course is evaluated by answering four questions:

- Did the trainees react in the classroom as they were expected to react?
- Did the trainees perform as they were expected in the mastery tests?
- Was there the desired improvement of their performance when they returned to their jobs?
- Did the training programme solve the operational problems that gave rise to it?

### **7.4 Reflecting on this module**



This module has provided you with a framework on how to design and develop a course. The various activities involved in course development have been scrutinized in detail.

This brings us to the end of the training manual. We hope that this manual provides you with clear direction on training fundamentals so that you can make the training effective and meaningful, both for you and your trainees.

Course : \_\_\_\_\_

Centre : \_\_\_\_\_

Date : \_\_\_\_\_

Instructor : \_\_\_\_\_

**Course Development**

In developing your course, have you identified and thought about the following activities:

- Conducting the preliminary study?*
- Conducting the job analysis?*
- Conducting the population analysis?*
- Designing the curriculum with specific performance objectives?*
- Designing the modules in an Organised and logical structure?*
- Considering the most appropriate mode of delivery?*
- Validating and revising the course as necessary?*
- Evaluating the course on a continuous basis?*

# **Glossary of Terms**



*Train the Trainer*

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*Training Fundamentals*

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| <b>Assessments</b>   | Assessments are ongoing process of identifying what and how individuals are learning, and providing a guide for the pace and nature of instruction. They are often thought of as allocating marks and something to be done at the end of a course, not in every session. Assessments provide valuable source of feedback to trainees, enabling them to monitor their own learning both in terms of competencies met as well as how to develop competence yet to be achieved.      |
| <b>Assessment Evidence</b>                                     | Assessment evidence refers to any work produced by trainees which is assessed, whether for purposes of formative or summative assessment. This would include trainees' responses in both fixed term examinations and all in-course assignments. Assessment evidence could also include witness testimonies, accreditation of prior learning, and peer assessments. It provides the raw data about trainees' performance from which assessment judgements and decisions are based. |
| <b>Assessment Item</b>   | An assessment item is any discrete part of an exam or test. It could be as small as a multiple-choice question or as large as an in-course project.   |
| <b>Assessment Items: Alternate Response (True/False) types</b> | These are among the most common types of test and among the easiest to construct. The responses are simple, requiring the trainee simply to determine if a statement is either true or false. The instruction usually requires the trainee to check or circle the correct answer.   |
| <b>Assessment Items: Completion types</b>                      | These form of tests are commonly used to measure familiarity with rules, procedures, formulas, etc. It requires the trainee to complete a statement in which a critical or unique element is missing.   |
| <b>Assessment Items: Essay types</b>                           | Essay type tests can call for either a short response to a question (one or two sentences), or require a long written response such as describing some activity or piece of equipment in detail. It can also be a report similar to the one trainees may have to prepare on the job.  |
| <b>Assessment Items: Fixed Response types</b>                  | These are assessment items where the trainees choose an answer from limited options provided.   |
| <b>Assessment Items: Matching types</b>                        | Matching tests could be considered as a group of multiple choice items combined together but having a single set of responses. This form of tests is not used as frequently as true-false or multiple choice and is usually more difficult to construct and score.  |

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| <b>Assessment Items: Multiple Choice (MCQ) types</b> | MCQs often vary in format and structure but essentially provide the trainee with a question(s) and a choice of response answers (typically 4). Certain stimulus material such as tables, diagrams, graphs, etc may also be provided to set a context for the question(s). The trainee must select his/her answer from the options.  |
| <b>Assessment Items: Open Response types</b>         | These are assessment items where the trainees, to varying degrees, choose the answers they provide.   |
| <b>Assessment Methods</b>                            | Assessment methods refer to the activities with which the instructor provides trainees in order to produce assessment evidence. Some of the most commonly used methods include, multiple-choice questions, short and long answer questions, essays, project work, case studies and practical laboratory assignments.  |
| <b>Assessment Scheme</b>                             | This refers to the document that details the overall assessment strategy used for a course of study.  |
| <b>Auditory Sensory Modality</b>                     | Preference in term of learning modality, which relies on listening to explanation.  |
| <b>Chalk And Talk</b>                                | The norm in teaching method some 25 years ago, where the teacher talking and using the blackboard when conducting lessons.  |
| <b>Brainstorm</b>                                    | Brainstorming is a very good method for a situation where the aim is to expand people's thinking in an area and generate ideas. In brainstorming, any idea is welcomed and no justification is needed. This method is particularly appropriate at the beginning of a topic to identify existing knowledge and provide a framework for learning.   |
| <b>Buzz Group</b>                                    | A buzz group is simply a small group of two or three trainees formed spontaneously to discuss a topic for a short period. In a pair, it is almost impossible for a trainee to stay silent and once the trainee have spoken "in private" they are much more likely to speak afterwards "in public" in the whole group. Buzz groups are very useful to get things going and when a difficult topic or some awkwardness has brought a session to a standstill. |
| <b>Case Study</b>                                    | A case study is a capture of a real life situation. Cases typically provide information outlining a problem-based scenario, where decisions involving value judgements are involved. The information actually provided varies considerably with cases. Some contain very detailed and comprehensive information; others simply document the key elements of a situation.  |
| <b>Collaborative Learning</b>                        | Also called cooperative learning or group work. Collaborative learning can be very effective as an instructional strategy as it encourages communication and teamwork, enables the sharing of knowledge and the meeting of different viewpoints and perspectives, facilitates problem solving and decision making, and it encourages ongoing peer assessments.  |
| <b>Cooperative Learning</b>                          | See "Collaborative Learning".   |
| <b>Core Instructional Method</b>                     | These are instructional methods that are probably the most used approaches and provide structure for a wide variety of equally important supporting methods.  |

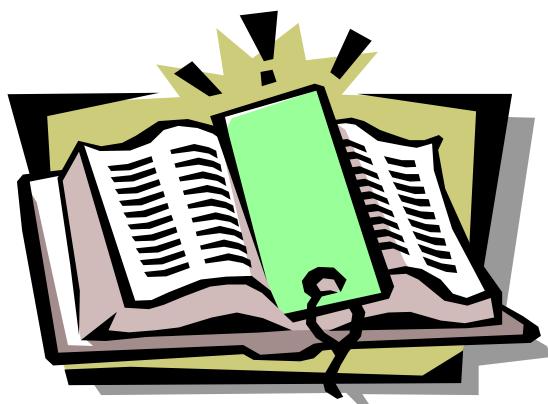
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| <b>Course</b>                           | A course is a planned learning experience for an identified group of trainees. This may involve anything from a three-year undergraduate degree in maritime management to a six-week induction for a new navigational device. Courses, in fact, can vary greatly in terms of scope, duration and mode of delivery.   |
| <b>Criterion-referenced Tests</b>       | These are tests where there is an unarguable, objective measure of the correctness of the answer that holds good independent of the level of the class of trainees or of the examiner's strictness. There is a single criterion for passing or failing each test.  |
| <b>Demonstration</b>                    | Demonstration is a widely used and effective method for teaching of skills at all levels. It is always linked in some way to other instructional strategies.   |
| <b>Discussion</b>                       | Discussion can be a very effective method when the main objective is to encourage trainees to share information and compare points of view. It can specifically promote learning in the following main ways: by providing a framework for cooperative learning, by encouraging the critical appraisal of different perspectives, and by developing a range of thinking skills. |
| <b>Evaluation</b>                       | Evaluation is essentially concerned with judging the worth or value of an activity or event. This is usually with a view to identifying ways in which such activities or events can be improved in future. However, evaluations can equally lead to decisions to terminate existing activities.  |
| <b>Facilitator Of Learning</b>          | Managing trainees' learning by using a variety of instructional methods, information sources and media – a shift away from the traditional role of a teacher as a primary provider of subject knowledge.   |
| <b>Formative Assessments</b>            | These are assessments primarily focused on developing learning rather than making summative decisions about level of performance. Formative assessments should be carefully planned and monitored in order to ensure that the trainees are adequately prepared for summative assessments.  |
| <b>Group Work</b>                       | See "Collaborative Learning".  |
| <b>Instructional Methods</b>            | Instructional methods refer to the planned strategies the instructor use to help trainees understand the content and develop competence in what the instructor intend them to learn, that is, meet the objectives.   |
| <b>Instructor's Reference Manual</b>    | A manual written in an interactive manner, designed to provide instructors with theoretical ideas and practical information on different aspects of teaching and learning.   |
| <b>Instructors' Workshop</b>            | A workshop aimed at developing special awareness to help participants learn about instructor's job and highlights problems trainees are facing, through observation of the instructor, the participant himself and other fellow participants.  |
| <b>Intellectual skills</b>              | These skill set can range from the most elementary to the very complex and may be divided into four categories: classifying, rule using, discriminating, and problem solving.  |
| <b>Intellectual skills: Classifying</b> | A skill that will enable the trainee to explain basic concepts and rules and provide definitions. This is considered the most basic of intellectual skills.  |

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| <b>Intellectual skills: Rule-using</b>      | A skill that will enable the trainee to explain basic concepts and apply the concept or given rules to calculate or judge the results.  |
| <b>Intellectual skills: Discriminating</b>  | A skill that involves making a judgement. The trainee needs to experience different situations before the skill can be fully acquired. Discrimination requires higher skill than in rule-using.   |
| <b>Intellectual skills: Problem Solving</b> | A skill that extends the trainee's rule-using skills beyond discriminating to finding solutions to problems. The rules learnt have to be combined with logic and experience in a complex fashion. Beyond problem solving lies other more finer skills worth noting, particularly cognitive strategy. This is the personal way in which a person thinks – intuitive, creative and systematic.                                      |
| <b>Kinesthetic Sensory Modality</b>         | Preference in term of learning modality, which relies on actually doing the activity.   |
| <b>Learning</b>                             | In the most basic sense, learning involves acquiring new knowledge, skills and attitudes that result in some change in the trainees' ability to do something.   |
| <b>Learning Objectives</b>                  | These are specific action statements, which specify what the trainee will be able to do, or say, or think, as a result of attending a course or a particular session. They do not state what the instructor will do or teach.   |
| <b>Lecturing &amp; Explaining</b>           | The most used instructional method. It is often referred to as "the lecture method", "presentation" or "chalk and talk". If used well it can facilitate effective learning by conveying key facts, concepts and principles. This will provide a framework to guide the learners through a topic and stimulating interest in a subject.  |
| <b>Lesson Content</b>                       | The body of knowledge the instructor wants to impart to the trainee during the lesson. It focuses on promoting understanding of a topic or underpinning a skill that trainees are to subsequently learn.  |
| <b>Lesson Handouts</b>                      | These, when given to the trainees, can be a very effective means of consolidating and developing learning – provided the trainees read them.  |
| <b>Lesson Plan</b>                          | A written document that identifies how the instructor intends to incorporate the essential elements into the lesson he or she is about to teach. Once produced, the plan is a working document for teaching this particular lesson.   |
| <b>Long Term Memory (LTM)</b>               | The component of the memory system, which has almost an infinite capacity for storing information. This contains all the information a person can recall.   |
| <b>Multimedia</b>                           | Multimedia packages can be of various types, starting from a simple presentation package containing electronic slides in place of overhead transparencies to animated and voice over ones. These packages can also be made interactive and designed to cater for continuous assessment. They may have a feature of recording trainees' performance and delivering the results to the instructor if used through a network system. |

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| <b>Performance Tests</b>                        | Performance tests are the most authentic form of assessment as they measure direct competence in real world situations. A performance test is one that directly measures identified learning, focusing on the actual competence displayed in the performance.   |
| <b>Physical Skills</b>                          | Skills that enable a person to make coordinated movements, perform manual tasks and carry out physical activities, such as driving a crane, running out a hose, or other similar activities.  |
| <b>Pitfalls in Assessments: Halo Effect</b>     | This is where the instructor's existing conceptions of a trainee's work affect subsequent marking. For example, if the instructor are used to a high standard of work from a trainee, the instructor may develop a tendency to over-mark future poorer work.  |
| <b>Pitfalls in Assessments: Contrast Effect</b> | This arises when outcomes of an assessment are affected by comparing a particular trainee with the preceding one whether the work is good or bad. For example, if the instructor has just assessed several weak assignments and is then presented with a quite well presented one, there is a danger of giving it more marks than it perhaps really deserves.                             |
| <b>Poster Board Tours</b>                       | Poster Boards are produced by groups of trainees working together on a task, to summarise the outcomes of their work. Posters can involve a design or proposal, lists of pros and cons of an approach, or the main features of a case study.  |
| <b>Psychological Sequence of Learning</b>       | Skill set taught and learned in a particular sequence.  |
| <b>Questioning</b>                              | It is one of the most difficult, but effective methods for promoting learning. The skilful use of questions can: stimulate interest and motivation, use trainees' knowledge for the benefit of the group, encourage communication between group members and assess trainees' knowledge and understanding.   |
| <b>Reliability of an assessment</b>             | The reliability of a test refers to the capability of a test to yield the same scores with different raters (persons scoring the test), and to yield the same results if administered at different points in time to equally competent trainees. A reliable assessment will measure the same thing consistently.  |
| <b>Role Play</b>                                | Role play is a very useful method when trainees need to develop and practice important social and interpersonal skills, for example, client service, conducting drills, meetings, counselling, etc. It enables learners to evaluate their performance and feelings in such situations and develop skills in simulated real life conditions without the consequences of real life failure. |
| <b>Rounds (in a discussion group)</b>           | A round simply involves everyone in the group, going around the circle in turn, commenting briefly on a particular topic.   |
| <b>Self Evaluation</b>                          | This involves the instructor looking critically at the module he or she is teaching and gain insight into what is working well and where improvements are needed.   |
| <b>Short Term Memory (STM)</b>                  | The component of the memory system, which can only cope with approximately seven bits of information at one go.   |

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| <b>Summative Assessment</b>                     | This refers to any assessment where final marks or grade are allocated to a learner's performance. Typically, this is related to end-of-module examinations.   |
| <b>Teaching &amp; Learning Resources (TLRs)</b> | TLRs refer to any teaching aids and resource materials that are to be used in the session to help develop the intended learning. These include audio-visual aids, IT applications, tasks for trainees to complete and handouts.  |
| <b>Understanding</b>                            | Involves more than memory, it requires the trainees to think about what they are learning and make sense of them in terms of real life applications. Without understanding, much of what they learn through memorization would have little use and is likely to be fast forgotten.                                       |
| <b>Validated Tests</b>                          | It means that the test has been tried with many trainees and been shown to provide an effective measure of performance. The validated test enables the instructor and the trainee to find out whether the objectives of the lesson have been achieved.   |
| <b>Validity, of an assessment</b>               | In basic terms, validity refers to the 'truth' of the assessments made. In assessing the trainees the instructor is making claims to know them in the areas being assessed. It is very important, therefore, that the assessment methods measure as accurately as possible what it is the instructor intends to measure. |
| <b>Videos</b>                                   | A useful TLR that provides opportunity to bring into classroom a wide variety of learning experiences that otherwise be inaccessible (e.g. things which are far away, too small, too big, or too dangerous).   |
| <b>Visual Sensory Modality</b>                  | Preference in term of learning modality, which relies on seeing pictures, words or diagram.  |

# **Index**



*Train the Trainer*

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*Training Fundamentals*

**Training Fundamentals**

- Action verbs (in describing skills), 2.6  
Ambient light, 4.8  
Analysis stage, 7.2  
Assessing learner performance, 5.1  
Assessment, 2.10, 5.1  
Assessment, alternate response, 5.8  
Assessment, attitude test, 5.7  
Assessment, evidence, 5.3  
Assessment, fixed response, 5.7  
Assessment, knowledge test, 5.7  
Assessment, methods, 5.3  
Assessment, open response, 5.7  
Assessment, scheme, 5.3  
Assessment, skill test, 5.7  
Assessment, table of specification, 5.4  
Assessment, true-false, 5.8  
Assessment, types, 5.7  
Attention graph, 1.5  
Attention span, 1.5  
Attitudinal change, 2.7  
Attributes, of good explanation, 3.2  
Audio-visual equipment, 4.8  
Auditory sensory modality, 1.7  
Blackboard, 4.2  
Brainstorms, 3.8  
Buzz groups, 3.8  
Case study, 3.4, 3.9  
Chalk and talk, 3.1  
Classroom, arrangement, 4.6  
Classroom, layouts, 4.8, 4.9  
Classroom, setting-up, 4.7  
Competence-based training, 1.1  
Completion type items test, 5.11  
Contrast effect, 5.15  
Cooperative learning, 3.4  
Core instructional methods, 3.1  
Course development, 7.1  
Criteria, for good assessment, 5.2  
Criterion, 2.4  
Criterion-referenced tests, 5.1  
Curriculum design, 7.3  
Demonstration, 3.2  
Design and production stage, 7.2  
Design of module, 7.3  
Developing a course, 7.2  
Discriminatory practices (in assessment), 5.15  
Discussion, 3.7  
End of course report, 6.5  
Essay type test, 5.12  
Evaluation data, collecting of, 6.3  
Evaluation stage (of the course), 7.2, 7.5  
Evaluation, concerns of, 6.5  
Evaluation, of test scores, 6.3  
Evaluation, of the lesson, 2.10  
Evaluation, types of, 6.2  
Evaluation, what is, 6.1  
Explaining, 3.1  
Eye contact, 4.8  
Facilitator of learning, 1.1  
Facilities, preparation of, 4.6  
Feedback, 1.8, 6.4  
FIATA Training Manual, 0.1  
Flipcharts, 4.2  
Formative assessment, 5.3  
Group exercise, 3.4  
Group exercise, how to conduct, 3.5  
Group study, layout, 4.9  
Group work, 3.4  
Halo effect, 5.15  
Handouts, 4.3  
How to assess, 5.5  
Implementation stage, 7.4  
Individualised instruction, 3.12  
Individualised instruction, layout, 4.10  
Influencing attitude, 2.7  
Instructional methods, 2.8, 3.1  
Instructor's professional development, 6.7  
Intellectual skills, 2.5  
Intellectual skills, classifying, 2.6  
Intellectual skills, discriminating, 2.6

- Intellectual skills, problem solving, 2.6  
 Intellectual skills, rule-using, 2.6  
 Job analysis, 7.3  
 Kinesthetic sensory modality, 1.7  
 Laboratory, layout, 4.10  
 Learner performance, evaluation of, 6.3  
 Learner practice (and supervision), 3.3  
 Learning group, 2.10  
 Learning materials, 4.3  
 Learning modality, 1.7  
 Learning objectives, 2.3  
 Learning plateau, 1.4  
 Learning tasks, designing and using, 3.21  
 Lecture method, 3.1  
 Lecturing, 3.1  
 Lesson content, 2.7  
 Lesson plan, 2.1, 2.2  
 Line-of-sight, 4.8  
 Long-term memory (LTM), 1.5  
 Manageable chunks, 1.5  
 Managing a planned discussion, 3.7  
 Marking scheme, 5.13  
 Matching items test, 5.10  
 Multimedia, 4.5  
 Multiple-choice test, 5.8  
 Outward looking attitude, 2.7  
 Overhead Projection Transparencies (OHTs), 4.2  
 Performance objectives, 2.3  
 Performance tests, 5.13  
 Physical skills, 2.5  
 Pitfalls in assessments, 5.15  
 Population analysis, 7.3  
 Poster board tours, 3.10  
 PowerPoint presentation, 4.6  
 Pre-demonstration planning, 3.2  
 Preliminary study, 7.2  
 Presentation, 3.1  
 Production & development testing, 7.4  
 Projector, setting-up, 4.8  
 Psychological sequence (in learning), 2.7  
 Questioning, 3.6  
 Questionnaires, 6.3  
 Reliability, of assessments, 5.2  
 Resource availability, 2.9  
 Role play, 3.10  
 Room organisation options, 2.9  
 Rounds, 3.8  
 Self-evaluation, 6.4  
 Sensory modality, 1.7  
 Short-term memory (STM), 1.5  
 Standard, 2.4  
 Stimulate, the senses, 1.3  
 Study area, arrangement, 4.6  
 Summative assessment, 5.3  
 Supporting instructional methods, 3.4  
 Teaching and learning resources (TLRs), 2.8, 4.1, 4.2  
 Test construction, 5.7  
 TOT Workshop, 0.1  
 Training aids, preparation of, 4.6  
 Training area, 2.9  
 UNCTAD Trainmar, 0.1  
 User friendly handouts, 4.3  
 Utilise, the senses, 1.3  
 Validated, 2.4  
 Validations and revision, 7.4  
 Validity, of assessments, 5.2  
 Videos, 4.5  
 Visual sensory modality, 1.7  
 What is a course, 7.1  
 What to assess, 5.4  
 Whiteboard, 4.2  
 Why assess, 5.4  
 Workspace, 4.7

