

# **Module 4 Learning Resources**

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## **Unit 4.2      Production of Learning/Instructional Aids**



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# About this unit



## Overview

Welcome to the second unit in the Learning Resources module.

This unit focuses on producing effective learning/instructional aids—planning, developing and evaluating your own learning/instructional aids and adapting and evaluating pre-produced aids.

The unit comprises four (4) sections:

- Section 1 provides an overview of the production process, including using selection criteria, the importance of planning and good design, and choosing to produce your own aids or selecting pre-produced aids.
- Section 2 goes through the planning process, looking at the steps you need to take and the selection criteria that will help you on your way.
- Section 3 concerns actual development of learning/instructional aids, including design criteria and production methods.
- Section 4 examines evaluation techniques for aids you have developed yourself and pre-produced aids.

## How to use this manual

Throughout this unit are various activities and exercises, in addition to two (2) assignments. The activities and exercises are not part of your final assessment, but they will help you to apply what you are learning and to check your progress.

You can check your responses to the activities and exercises against the response guidelines provided at the end of the unit.

The unit includes two assignments that you must complete and submit to your tutor.

***Your assessment for these assignments will form the basis for satisfactory completion of this unit.***

## How you'll be assessed

You'll be assessed on two assignments based on competency. Your assessment will be graded as either 'passed' or 'incomplete'. These assignments will require research and will be presented in the form of written reports and samples of aids prepared by you. Contact your tutor regarding the time allowed to complete and submit these assignments.

## Finding your way

Throughout the unit you will see symbols (or 'icons') in the left-hand margin of some pages. These symbols will help to guide you through the text.



Read



Activity (self-evaluation questions/exercises)



Important—take note!



Assessment task



Listen to an audio tape



Watch a video tape

## Competency

The competency for each unit is expressed as a number of learning outcomes and assessment criteria.

Assessment criteria specify what you must be able to do to demonstrate that you have gained the knowledge and skills needed to achieve each learning outcome.

Each unit has its own specified learning outcomes. Recognition of prior learning is encouraged; so if you feel confident that you can satisfy the requirements listed below, you may be able to complete the assessment without studying the unit.

## Learning Outcomes

Can you:

- identify the criteria for development of effective learning/instructional materials
- assess a range of learning/instructional materials against identified criteria
- identify procedures involved and requirements for the development and production of learning/instructional materials
- develop a plan for the design, development and production of materials (charts, overhead transparencies, realia and handouts) to support nominated units of work
- develop and produce materials from the plan you produce
- conduct an evaluation of the produced materials that includes a detailed costing.

If so, discuss taking the assessment with your tutor.

## Other resources

You may need to explore other learning resources in addition to the information provided in this unit. Important sources of information include:

- local libraries and resource centres
- your local or national curriculum centre.





# Introduction



## Producing effective learning/instructional aids

The effectiveness of learning/instructional aids depends on careful selection, planning, design, production and use. Selecting an inappropriate aid, inadequate planning, poor design or presentation can all reduce the effectiveness of an aid.

## Using selection criteria

The same criteria that you used to select the type of learning/instructional aids you would like to use (Unit 4.1) can be applied to developing and producing those aids.

Criteria such as the learning activity, the group size, resources, facilities or time available will help you decide on content, how simple or complex the aid can be, and when and how you can use it. The criteria can also be applied to deciding whether to use, incorporate or adapt pre-produced material.

## Planning and good design

Two important elements in producing effective learning/instructional aids are planning and good design. Developing and producing learning/instructional aids takes time and effort. It's a shame to waste that time and effort on aids that fail because you haven't thought through the process properly.

## Planning



Planning is essential for effective use of learning/instructional aids—particularly if you haven’t produced or used a particular type of aid before. Planning helps you to ensure that the aid covers the necessary content and that you have all the materials, tools, facilities and resources that you need before you start.

You should plan your content, production and presentation carefully, giving yourself ample time for production. Use the selection criteria as a checklist to keep on track. Well-produced and presented aids can make a significant contribution to learning.

## Good design



Good design is not simply a matter of what looks good—it's about producing learning/instructional aids that are effective communication tools. Well-designed aids are easy to use and to handle, are easy for learners to understand, are visually appealing, present information clearly and effectively, and achieve their objectives. As in most things, simplicity is the key.

The type of aid, its purpose, the information you are communicating and the nature of the learner group will all influence design. Good design will mean that the learning/instructional aids you use are effective and add to the teaching and learning experience.

## **What's already available?**

If you have limited time, resources or skills it may be more effective to use or adapt pre-produced aids. There is a wide variety of pre-produced learning/instructional aids available to teachers and instructors, ranging from simple print materials and slides to sophisticated computer packages. Many of these are readily available through libraries and resources centres, and have the advantage of being professionally produced and ready to use.

Some pre-produced aids are designed to be adapted for individual use—you can use some or all of the material provided or adapt it to a different presentation form. For example, you can transfer print materials to overhead transparency or slide or use parts of a package (slides, video) to illustrate your own print materials.

Two important things to remember if you are using/adapting pre-produced learning/instructional aids:

- don't use a pre-produced aid just because it's available—it has to satisfy the same criteria as an aid you produce yourself
- if you decide to adapt a pre-produced aid, make sure you observe any copyright regulations and restrictions.

## **Summary**

- Careful selection, planning, design and use are important to the effective use of learning/instructional aids.
- Good planning is essential to achieving your objectives.
- Good design means an aid looks good, is easy to use, presents material clearly and communicates effectively.

- What you can do yourself is limited by your own skills, resources, time available and cost.
- Pre-produced materials can save you time and money and overcome limitations in skills and resources.
- Use selection criteria both for aids you produce yourself and when selecting pre-produced aids.
- Remember copyright issues when using pre-produced materials.

## Activity

1. Why is planning important in producing and using learning/instructional aids?
2. What are the features of a well-designed learning/instructional aid?
3. How would you decide if you could produce an aid yourself?
4. What are pre-produced aids and why would you use them? You may want to provide some examples.
5. What should you check before using or adapting pre-produced material?

*Guidelines to activity responses are provided at the end of this unit.*

# Section 1



## Planning & Design of instructional aids

Once you've decided to use learning/instructional aids, you should prepare a plan for developing the content and producing the material. Planning takes into account the criteria you have set, what you need to do to satisfy those criteria, and the steps you will take to produce the aid.

## Selection criteria for development and production



The selection criteria you used to select materials for learning/instructional aids can also be used to guide their development and production:

- learning activity
- objectives of the instruction

- type of information
- target audience
- class size
- available facilities
- available resources
- teaching/learning environment
- cost of materials etc.
- time available for preparation and presentation
- practicality of use.

As you plan the development and production of learning/instructional aids, keep referring back to these criteria to make sure that you're on track.

### **Learning activity**

Some aids are more suited to particular learning activities than others. During an interactive learning activity—for example, discussion, practical work—you may want to pause your presentation or regulate the pace. If the learning activity is more passive—a demonstration or lecture with discussion later—you don't want too many interruptions or pauses while equipment is set up or adjustments are made.

The aid should:

- complement the learning activity
- not require frequent or lengthy interruptions to the activity
- allow for necessary interruptions—discussion, practical work
- match the skills and learning pace of the learners.

### **Objectives**

The objectives of using a particular type of learning/instructional aid can include:

- information
- explanation
- illumination
- motivation



- interactivity
- self-assessment.

When you develop an aid, you need to keep your objectives in mind. An exciting visual presentation (slides, video) is not effective if it doesn't also contain all the information required. A diagram with too much detail can be confusing rather than explanatory. Interactive computer software can be distracting, with the focus shifting from mastering the topic to mastering the technology.

The aid should:

- satisfy your original objective(s) in selecting the aid
- place emphasis on the subject, not the means of presentation.

Remember why you selected a particular aid and stick to your original purpose.

### **Type of information**

Your planning should take into consideration the type of information you want to communicate. Simple or basic information may need special treatment to make it more interesting; important or essential information may need highlighting in some way; theoretical information may need practical examples or demonstrations.

More complex information may need a combination of things—for example, overhead transparencies supported by handouts. When you are planning your learning/instructional aid remember to include development of supporting material if required.

The aid should:

- present the information clearly and appropriately
- be visually interesting without distracting attention from the content.

### **Target audience**

Your target audience may be a specific group or several different groups. This will mean that the material may need to be adaptable or presented in a different form for different groups and different circumstances.

The skill level of the group should determine the level of the aid—complex diagrams won't assist learners who are only just beginning

to grasp basic concepts. A simplistic video won't motivate learners who are at a more advanced stage. Working models or computer programmes may require time-consuming explanation and demonstration before the learner can actually use them.

In addition, you need to take into account any special needs of the group—learning, language or physical disabilities that may limit the effectiveness of the learning/instructional aid for learners.

The aid should:

- be appropriate for the group type and skill level
- be easy to adapt if required
- take into account any special features of the group.

### **Group size**

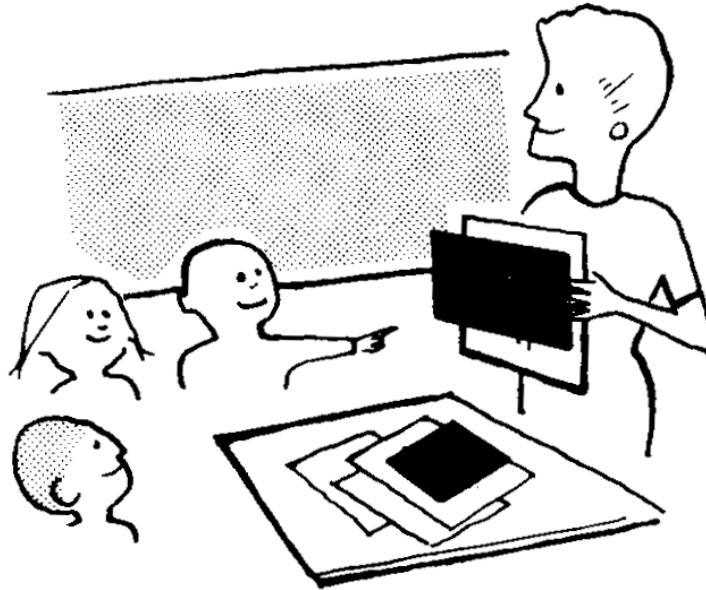
Even if the aid you selected is suitable for groups of varying sizes, you still need to keep the group size in mind for development and production. The aid may need to be adaptable for small and large groups, or capable of being enlarged considerably or reduced to a manageable size.

In your planning you should consider how you will manage with larger groups—more print copies, larger format text on overheads, splitting groups into smaller groups to examine realia or models or use computer software.

You may want to produce slides or a video to show processes or activities that are difficult to demonstrate with larger groups, or to present fragile realia or models that won't stand up to excessive handling.

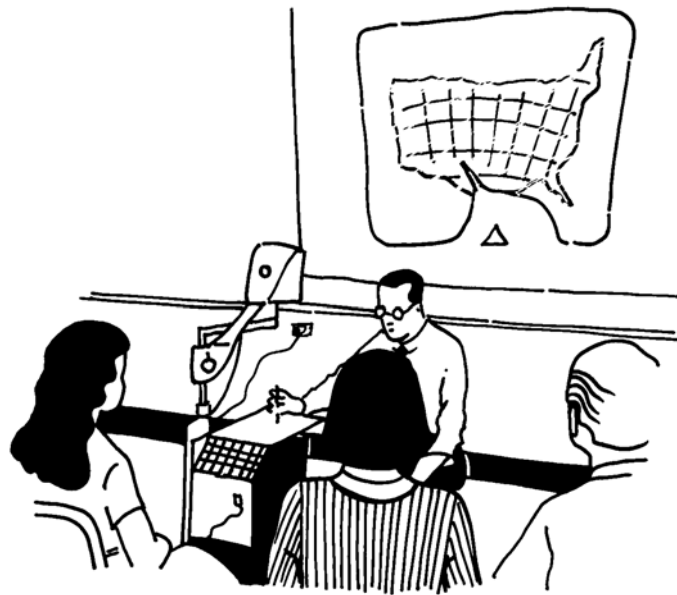
The aid should be:

- large enough to be visible to the whole group
- able to be presented in an alternative form if necessary
- supported by other material if group size limits learners' access.



**Small-Group Viewing**

### **Facilities**



The facilities available to you may be limited or you may have a choice, depending on the equipment you require and factors such as group size. Flexibility and adaptability in design will help you make the best of any situation. Plan your learning/instructional aid keeping in mind the facilities you may have to use and the adaptations that may be necessary.

Contingency plans are always a good idea—just because the equipment isn't working or the right room is not available doesn't mean the end of the world. Make sure you have adequate support material and consider producing the aid in different formats as back-up - e.g. charts and diagrams both for display and on overhead transparency, overhead transparencies duplicated on slide, computer software that can be projected for the whole group as well as used by individuals or small groups.

The aid should be:

- developed and produced for available facilities
- flexible for use in different situations.

## **Resources**

You should always check available resources before planning the development and production of a learning/instructional aid. In addition to essential resources, you should also investigate ways of enhancing the aid and resources that might assist you in this task.

A lack of resources doesn't necessarily mean you can't produce or use a particular type of aid—but you may need to take a different approach. You should be aware of the alternative resources available to you and plan accordingly.

Sometimes you may need to change the format of your aid—flexibility is the key. Be aware of alternative materials, equipment, information sources and assistance that are available.

The aid should be:

- easy to develop and produce using existing resources
- easy to adapt if required.

## **Environment**

When you first selected a type of learning/instructional aid (Unit 4.1), you took into consideration the environmental factors—light, heat, noise, disruptive surroundings. You need to consider these things when you design and produce your aid.

Consider producing both overhead and slide transparencies if lighting or darkening a room is likely to be a problem. Make a video of a working model if using the model will be difficult in some situations. Have back-up print materials to use if power fails or you

have equipment problems. Contingency plans are always a good idea if the environment is uncertain.

The aid should:

- be suited to the environment in which you want to use it
- be available in an alternative form (e.g. print materials) if necessary.

### **Cost**

Even the simplest aids can turn out to be overly expensive if you don't cost them carefully and stick to your budget. You run the risk of running out of money before the aid is completed, having to settle for a poor quality end product, or not being able to produce additional or supporting material.

Don't guess—cost the aid properly, taking into consideration all materials, resources, equipment and assistance you may require. Remember that time can also be a cost, particularly if producing, developing or using an aid requires using resources other than your own.

Investigate cheaper alternatives and sources of materials. Prepare a budget that you can use to guide you in developing and producing the aid.

Remember that a versatile, adaptable aid that can be used in a number of different situations is more cost-effective than a one-off, even if it's more expensive initially.

The aid should:

- meet your budget requirements
- be cost-effective.

### **Time available for preparation and presentation**

As with cost, you need to manage your time in developing and producing learning/instructional aids. It's always wise to over-estimate how much time an aid will take to develop, produce, set up and use. Remember to include time spent learning any new skills required, obtaining materials and testing the aid before you use it.

The aid should:

- be cost-effective in terms of time spent in development and production
- be appropriate for the time available for setting up and presentation.

### **Practicality**

Practicality combines all the previous criteria. The aid needs to be able to satisfy the criteria you have set to make it a practical teaching tool. If the preparation, cost, equipment, transport and setting up requirements outweigh the benefits, then an aid is simply not practical.

You need to examine all these factors and identify how you can satisfy these criteria in the best possible way.

The aid should:

- be relatively easy to produce
- be easy to use
- be cost-effective
- require minimum maintenance
- have a life-expectancy in keeping with its cost.

### **Activity**

1. List the selection criteria that can be used to guide learning/instructional aids.
2. List the common objectives of using an aid.
3. How does the learning activity affect the type of aid you would select? Give an example.
4. Why do you think time should be considered when you cost an aid?
5. How do you judge whether an aid is practical or not?

*Guidelines to activity responses are provided at the end of this unit.*

## Development and production

There are a number of steps to guide you in planning the development and production of learning/instructional aids:

- analysing the task
- objectives
- motivational and educational components
- sequencing materials
- technical content
- costing
- choosing the appropriate materials
- considering adaptability
- incorporating pre-produced material.

Use these steps to guide you through the planning process and the actual development and production.

### Analysing the task

Once you've selected your learning/instructional aid and checked the selection criteria again, you need to analyse exactly what your task is. It could be as simple as 'prepare a half-hour slide presentation illustrating a three-stage production process with written support material'. Alternatively, it may be as complex as 'develop a four-level self-assessment programme using video followed by a computer programme'.

The first example only requires you to identify and select the material, write up the support material and make appropriate preparation for setting up and delivering the presentation. The second example requires considerably more preparation and planning—writing and producing the video and computer programme, selecting or adapting material, testing and evaluating.

Break down the task into its individual components—research, selection and development of content, selection of materials, production and preparation.

Ask yourself:

- What exactly do I want to produce and why?
- What content do I already have and what else do I need?

- What materials do I need?
- What resources, equipment and facilities do I need?
- What support material do I want to prepare?
- What special arrangements do I need to make?

When you've answered these questions you will have a reasonable idea of the task ahead and can concentrate on developing the content and producing the aid.

### Objectives



Keep your objectives firmly in sight as you select and develop your content and design. If the objective was to illustrate a simple process in four logical steps, make sure the aid does just that. Don't get carried away with the process and include unnecessary or irrelevant information, or allow essential information to be left out because it doesn't fit in with your design.

Use your objectives to guide you when you edit and produce material—do you need to add or delete information, use colour coding for important points, include supporting material, make the presentation shorter?

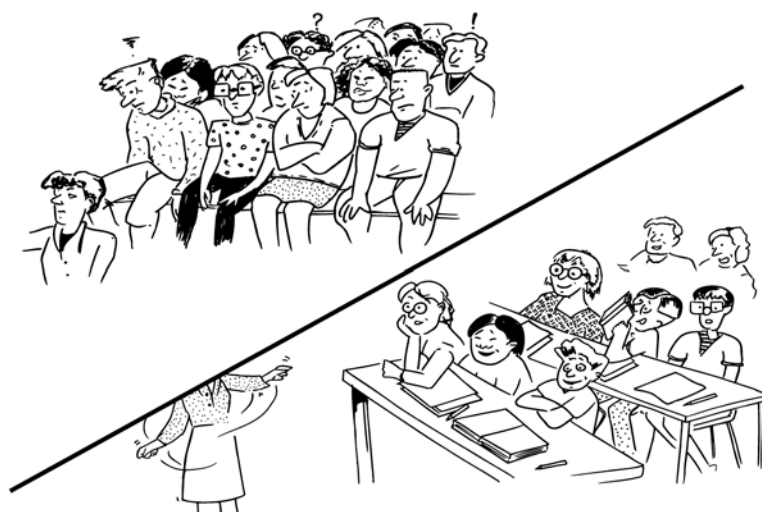


Consider the needs and skill level of the learners in terms of how the aid will satisfy the objectives. You need to make the aid work for both you and the learners for it to achieve the desired outcomes.

Ask yourself:

- Does the aid satisfy the original objectives?
- Is there anything I should do to enhance its effectiveness?
- Have I included enough/too much information?
- Are there any factors that might prevent the aid from being effective?

### Motivational and educational components



Learning/instructional aids can enhance the learning process by motivating learners as well as providing important information. It's not always easy to introduce interactivity in an aid, but you should look at ways you can involve the learners and ways that you can make your presentation more active.

The information needs to be clear, relevant and easy to follow. The purpose and relevance of the information you present should be easy for learners to identify. Don't use an aid simply for the sake of using it—the educational components must be appropriate and relevant to the learning activity and the topic.

Ask yourself:

- What will the learners gain from this?
- Is this an active or passive aid?

- Are there any ways I can make it more active/interactive?
- What are the educational components and are they adequately presented?
- Does the aid communicate this information effectively?

### **Sequencing materials**

It's important that the content of a learning/instructional aid follows a logical sequence—building up information gradually and in the right order. You could compare it to telling a story—it must have a beginning, a middle and an end. You need to give learners a context for the information (a reason for learning) and a logical order to follow (an ultimate goal).

Thinking about sequencing will also help you to organise and edit your material—is there enough or too little detail, is all essential information included, is all the information necessary or relevant, is it easy to follow?

Where you start your sequence will depend on the subject. You might use a series of diagrams to illustrate a process, starting with an overview and gradually moving through individual sections of the process, diagram by diagram. The overview provides the context and the individual diagrams can focus on specific aspects without too much confusing detail.

Alternatively, you might use a video to show how a machine is constructed, starting with the central component and adding components one by one until the machine is complete. In both cases you start with a simple piece of information (the nature of the process, the basic component) and build on it.

Ask yourself:

- Does this material follow a logical sequence?
- Have I given the material a context for learners?
- Have I broken down the sequence into appropriate sections?
- Have I included all the necessary information?
- Is it easy to follow?

## Technical content

$$r = \frac{\sum (x - \bar{x})(y - \bar{y})}{n \sigma_x \sigma_y}$$

Learning/instructional aids can be very useful in communicating technical information, especially when examining processes, systems or functions that are difficult to describe or visualise.

It's important to ensure that technical content is accurate, clearly presented and easy to follow. Accuracy doesn't just mean that the information is basically correct (e.g. the theory behind a process); you need to check technical terms, names of processes and components, and whether your information is up to date. Your job will be harder if you have to explain updates and changes, and learners may become confused when different terminology is used.

Technical content is often complicated and detailed and may need to be broken down into more manageable 'chunks'. Sequencing will help you to organise the content more effectively, while visual demonstrations of theory in practice will help communicate abstract concepts.

How you present the technical content is also important. Using several diagrams rather than one, overlays on overhead transparencies, coloured highlighting or coding of related items, and incorporating graphics and diagrams in video presentations are ways of overcoming problems of detail and complexity.

Ask yourself:

- How much technical content is required?
- How is it best presented?
- Is it accurate?
- Is it up to date?
- Is it complete?
- Is it easy to follow?
- Do I need supporting material (print, handouts)?

## Costing

Preparing an accurate costing is an important part of planning learning/instructional aids. The financial resources you have available determine not only what types of aid you can afford to produce but what materials you can include and how you can use them. You should always investigate costs thoroughly—the range of prices for materials, equipment and services and what alternatives are available.

A simple video becomes much more expensive if you want to incorporate sophisticated graphics or animation. A computer programme can be expensive to develop, and the cost might not be justified if its usefulness is limited. You should start with a basic costing of what is essential to produce and present the aid and then add to that the cost of optional materials, production processes and equipment.

Start your costing with a list of all the materials you need, any equipment you may need to buy or pay for access to, and any production processes you have to pay for (e.g. slide processing, mounting or laminating diagrams or charts, video editing, graphic design, copying and binding). You may need to cost the time involved as well—the hours spent in developing and producing the aid. Remember the little details such as delivery costs or special storage or packaging requirements.

You can add to this list the optional extras that you would like to incorporate if the budget allows; for example, higher-quality materials, use of colour rather than black-and-white, more sophisticated production processes, additional support materials.

## SAMPLE COSTING SHEET

### Costing for production of slide presentation.

ITEM	Description	Unit cost	Total
Film	Two rolls 35 mm film	Per film	
Graphics	Two adapted diagrams of process (originals costed separately)	Per diagram	
Processing	Using commercial film processing service	Cost of processing each film	
Mounting	25 mounts (mounting in-house)	Cost of each mount	
Slide carousel	1 carousel to hold slide collection		
Support materials	Fifteen colour copies each of two diagrams	Cost per colour copy	
	Fifteen copies of one page of notes	Cost per copy	
Time	Photography	Cost of time spent per item based on your hourly rate	
	Adaptation of diagrams		
	Travel (to locations)		
	Arranging processing		
	Preparation of support material		
	Mounting		
	Labelling		
<b>TOTAL AMOUNT</b>			
Optional extras:			
Professional mounting	Include mounting in professional processing	Cost per slide	
Duplication	Duplicate set of slides for back-up	Cost of duplicate set	
Storage	Plastic sheets to store slides	Cost per sheet	
Enhancement	Addition of captions or graphics to images (during processing)	Cost per slide	

Remember that the cost of an aid is relative to its effectiveness and usefulness. A well-produced, adaptable aid with a long 'shelf-life' may be worth the extra expense. A simple home-video on a specific topic might be more valuable than an expensive pre-produced package that only covers a fraction of the information required.

Ask yourself:

- Have I listed all the costs involved?
- Have I checked for hidden costs?
- What are the most cost-effective choices?
- Will the cheaper alternatives be as effective and useful?
- Do the benefits justify the investment of time?

### **Choosing the appropriate materials**

Choosing appropriate materials means matching your objectives, the content, the budget and the aid you have selected. A black-and-white chart may be inexpensive but may not be as visually stimulating as colour slides. A video may be visually interesting but may also be expensive and time consuming to produce.

Ask yourself:

- Are the materials appropriate in terms of objectives, content and budget?
- Do I need to use colour, show movement or be able to pause the presentation?
- Are there alternative materials I could use with this aid that would be more appropriate?

Learning/instructional materials that can be adapted for use in a variety of situations, formats and learning activities are more valuable than a single-purpose aid. Adaptability can also provide you with a back-up if you can't present the material in the way you originally intended (e.g. using flip charts and handouts instead of overhead projection if there are equipment problems).

## Considering adaptability



Print materials may also be suitable for enlarging and displaying as charts and diagrams, or adapting for overhead transparency or slide projection. Computer-generated material may be suitable for production as slides, for computer projection or for inclusion in a video or computer program. Digital still photos or scanned images may be used to create a digital slide program, for viewing via computer or large screen projection. A wall display is also possible if large format prints of the digital images are made. Yet another possibility is to incorporate the material into a printed manual or workbook using available software programs.

Similarly, material can be adapted for different skill levels and learning needs. Using the same basic content, you can prepare two versions of an overhead transparency or slide sequence for different groups—one simple, one more detailed. Material can be edited to suit different purposes—the same video footage can be compiled in different ways with different commentary to suit the focus of different groups.

However, it's not just a matter of taking the original material and slapping it into the new format. You may need to change the use of colour, simplify a print diagram for overhead projection, lay out a chart slightly differently for computer projection. Keep in mind from the start if and how you might want to use the material in other formats and how you can make it easy to adapt.

Ask yourself:

- Do I want to use this material in more than one format or situation?

- What are alternative uses for the material?
- How easy will it be to adapt the material?
- Will adapting the material be cost-effective?

### **Incorporating pre-produced material**

Pre-produced learning/instructional aids offer you the advantage of professionally produced material that's ready to use. The disadvantages are that the material may be expensive, may not satisfy all your information requirements and may need replacing frequently with more up-to-date material.

Look for pre-produced material that can be adapted to your specific needs. Some pre-produced materials come in packages; for example, combinations of print materials and slides or video or computer software, different information units, or materials for both teachers and learners. These are easily incorporated in your own materials simply by selecting what you need and adding or removing content.

You might use a series of pre-produced charts or diagrams supported by your own print material, or a tape-slide sequence using professionally produced slides with your own commentary. However, when you consider incorporating professionally produced material, remember that any 'home-grown' material will probably look different and may suffer from the comparison. Try to incorporate material as individual sections rather than mix it with your own.

A final important point is the question of copyright. Whenever you use material produced by someone else—such as a diagram copied from a book or a section of a pre-produced package—you should ensure that you are not infringing copyright law. Copyright law is complex and varies from country to country and with different sorts of publication media. Most educational institutions and resource centres can provide guidelines and most published material carries copyright warnings.

If you are considering incorporating pre-produced material in your learning/instructional aid, ask yourself:

- Will this material add to the effectiveness of the aid?
- How easily can it be adapted for my purpose?
- How can I incorporate the material for a smooth presentation?
- Have I checked the copyright issues?



## Summary

### Selection criteria

- Planning identifies what you need to do to satisfy the selection criteria and produce the learning/instructional aid.
- Continually refer to the selection criteria while you are planning, to keep you on track:
  - Match the aid with the learning activity.
  - Focus on the objectives and don't get sidetracked by the presentation.
  - Keep in mind the type of information—simple or complex, practical or theoretical.
  - Consider group size and skill level and what adaptations you may need to make.
  - Ensure you have suitable facilities or can adapt the aid to the available facilities.
  - Investigate available resources and ways of overcoming lack of resources.
  - Suit the aid to the environment and be prepared for environmental problems.
  - Cost the aid properly and remember the hidden costs such as time.
  - Ensure you have a good idea of how much time the aid will take to develop and produce and that the benefits justify the time spent.

## **Development and production**

Follow the nine basic steps to plan the development and production of your aid:

- Analyse the task to identify just what you need to do.
- Use the objectives to guide content and presentation.
- Try to increase motivation by using interactivity and ensure the educational components are presented effectively.
- Use sequencing to organise your information and move from the simple through to the complex.
- Ensure technical information is correct, up to date, complete and neither too simple nor too complex.
- Prepare an accurate costing and compare it with alternatives and potential benefits.
- Select materials that are appropriate to the objectives and the content.
- Consider the potential need to adapt the aid and the possibilities for adaptation.
- Examine the potential of pre-produced or readymade aids as an alternative or supplement to aids you produce yourself.

**Activity**

1. List the steps you use in planning the development and production of aids.
2. How do you analyse the task?
3. How does sequencing help you deal with technical content?
4. What should you consider when costing an aid?
5. What are the advantages and disadvantages of pre-produced materials?

*Guidelines to activity responses are provided at the end of this unit.*

## Assignment No. 4.2 – 1

### Unit 4.2 Production of Learning/Instructional Aids

You are now required to do the **Assignment 4.2 – 1** which will be found at the end of this unit or distributed by your Tutor.

If you have any questions relating to the assignment or the assessment, please don't hesitate to contact your Tutor.

## Section 2



### Production of learning/instructional aids

#### What can I do myself?

Developing and producing your own learning/instructional aids can be very rewarding and provide you with your own 'resource' library that you can build up over time. If you adopt a flexible approach and plan carefully, you can produce aids that can be adapted to a variety of formats and situations.

Careful selection and planning will make producing your own materials much easier. What you can do will be limited by the materials, resources, skills and time available to you. Applying selection criteria (e.g. resources, time, cost) will help you set the limits of what is possible and what is practical.

Understanding the skills required to produce a particular type of aid is also very important. Out-of-focus slides, a poorly produced 'home' video or a model that simply doesn't work properly are not effective learning/instructional aids. Acknowledge your own experience and skills and don't be too ambitious. If your experience or resources are limited, stick to simple aids such as charts or diagrams or consider using pre-produced aids.

Remember that, collectively, technical and vocational teachers have a wide range of practical skills. If you do need help, it's very likely that an experienced colleague can assist you.

Once you've selected your learning/instructional aid, completed a plan for development and production, and developed your content, you're ready to begin production.

#### Design criteria for learning/instructional aids

Design is a very important feature of the production process—it's not just a matter of attractively presented material but how effectively it communicates the information. No matter how good the content, how well the aid is designed will influence how effective it is as a teaching tool.

Design criteria you need to consider for visual learning/instructional aids include:

- layout
- lettering
- use of colour
- type of illustrations
- clarity
- readability
- logic
- ease of use
- durability

Use these criteria when you are preparing learning/instructional aids and to evaluate pre-produced aids.

Design recommendations specific to each type of aid are provided in the section Producing Learning/Instructional Aids.

## **Layout**

Layout describes the way you set out information on a page or poster, transparency, slide, computer screen or television screen (if you are using a still image or graphics). It covers margins, the positioning and spacing of headings, text, graphics and illustrations, and the location of headings.

The layout requirements will vary according to the type of information you are presenting (text, charts and diagrams, illustrations, graphics, or a combination of any of these) and the form of presentation (e.g. book, poster, wall display, overhead or computer projection, computer or television screen).

There are standard layout templates for preparation of material for slides, overhead transparencies and television screen display. Information on these templates is provided in the section Producing Learning/Instructional aids.

Key requirements in most formats include:

- plenty of 'white space' (blank area) around text and images
- logical order of information

- no more than three columns of text
- easy to distinguish headings and labelling
- no crowding of information

## **Lettering**

Lettering is important for clarity and physical ease of reading, particularly for projected materials. The best lettering size will vary with the type of presentation format and with the font you are using—remember one style of type can appear smaller or larger than another even though the point size may be the same.

For ease of reading use a plain rather than ornate typeface (or font). Use a different font and/or lettering size to distinguish headings from body text and different levels of heading from one another. Simple bold capitals or initial capitals are best for headings—don't combine italics, bolding and underlining all in one heading.

Spacing is important—use an 'open' typeface (one that doesn't crowd the letters together) and make sure that the space between lines (the leading) is adequate.

Key requirements include:

- simple, clear lettering
- well-spaced lines of text
- minimum number of different fonts
- a font size large enough to be read clearly from a distance when displayed or projected

## **Use of colour**

Colour can be a valuable addition to a learning/instructional aid, but it can also have its problems, particularly for projected or on-screen material. Some computers have a limited range of colours, while some printers don't use the transparent ink required for producing overhead transparencies.

You can use colour to make print and display material more interesting, to identify different sections of material, to distinguish different information, components or relationships, or to show continuity. (If colour is used for more than visual interest, you should check that none of the group is colour-blind.)

Choose colours carefully so that they can be distinguished from a distance (not shades that are very similar). Solid, bright colours (rather than shades) are best for projected and on-screen material. Try to match the colour to the subject and its importance; for example, blue for water or red for the main process. Use colour to box or highlight important information.

Some colours and colour combinations should be avoided in certain formats; for example, red or green lettering can be hard to read in print materials. Contrast is the key—mid or dark lettering or graphics on light coloured backgrounds, white or bright coloured lettering or graphics on dark backgrounds.

Key features include:

- good use of contrast
- clear, bright colours that are easy to read and see
- careful use of background colour
- not too many colours all in the one place
- able to be reproduced on available equipment

### **Type of illustrations**

Illustrations are important additions to learning/instructional aids and can be very effective both to add visual interest and convey information. You need to select your illustrations carefully, keeping in mind how you will be able to incorporate them in your materials and duplicate them if necessary.

When you are choosing illustrations or preparing them you should take into account size, detail, reproduction quality and whether they're to be presented in black-and-white or colour.

Select illustrations that can be reduced or enlarged to suit the format without losing detail or becoming 'muddy'. A simplified line drawing may be better than a detailed print that won't reproduce or project well. Good print copies of photographs usually require a photocopier with a half-tone facility. Colour illustrations often don't photocopy well on a black-and-white copier.

Copying illustrations from books and similar materials may require access to computer scanners or photographic equipment such as a copy stand and macro lens. Similarly, slide processing and duplicating also requires special facilities.



Key features include:

- clear, clean originals
- ability to be reproduced easily
- no loss of detail or blurring when copied or projected
- able to be presented in black-and-white if no colour facility available

### **Clarity**

To be effective, a learning/instructional aid must be easy to read or view, easy to understand and consistent in the way it presents information.

Information should be presented clearly, well-organised and in logical order. Detailed information should be easy to distinguish or broken down into simpler form. Illustrations need to be well-presented and clearly labelled, and headings and captions easy to distinguish and to read.

Consistency in the visual cues you use is important to assist the learner in identifying the importance of information or specific relationships.

Key features include:

- clear presentation
- well-organised material
- clear identification of illustrative materials
- consistent layout, headings and use of colour and terminology

### **Readability**

Readability combines presentation and style—the physical ease of reading and the ease with which the text can be understood. If text is presented attractively, readers are more motivated to read it. If the flow of words is easy to follow, readers will absorb the information more readily. Learners shouldn't have to struggle to learn!

Lettering that's too small, too ornate, badly spaced, or difficult to read because of colour or background makes reading a chore. Large blocks of text without headings or paragraph breaks are also discouraging. Messy or too-detailed charts and diagrams, poorly labelled illustrations and badly organised information will all discourage the reader or viewer.

Use clear, concise language that's suited to the topic and the skill level of the group. Short paragraphs, bullet points, a good heading hierarchy and informative headings and labels will all assist the learner in identifying and understanding the information that's being presented.

Typographical, spelling and similar errors often distract and annoy readers. Material should be carefully proofread and corrected before production. Hand-scrawled corrections and amendments on print, display or projected materials are not acceptable unless they are part of the teaching session.

Key features are:

- attractive, easy to read presentation
- well-organised material
- clear, concise, appropriate language
- short sentences and paragraphs
- good heading hierarchy and labelling
- error-free

### **Logical order**

Logical order is very important, particularly for learners dealing with new or complex information. It also makes presenting the information easier for the teacher/instructor. Logical order contributes to clarity and readability and makes adapting or selecting from material easier.

Move from the general to the specific and keep information on the same or related topics together; don't keep chopping and changing. Make sure any relationships between different information are quite clear. Keep graphs, charts, diagrams and illustrations with the text that refers to them—not three pages or transparencies later because they look or fit better there. Good design is as much about the effectiveness of the aid as it is about good presentation.

If you're collating material from several different sources or combining your own and pre-produced material, make sure you keep a logical order. If you're combining commentary with visual images (slides, computer projection, video) make sure your commentary matches the material being displayed. Learners will become confused if the flow is interrupted or they can't relate what is being said to what is being shown.

Key features include:

- logical sequencing of materials
- logical grouping of materials
- clear explanation of relationships
- appropriate placement of illustrations
- smooth integration of material
- matching commentary and visual display

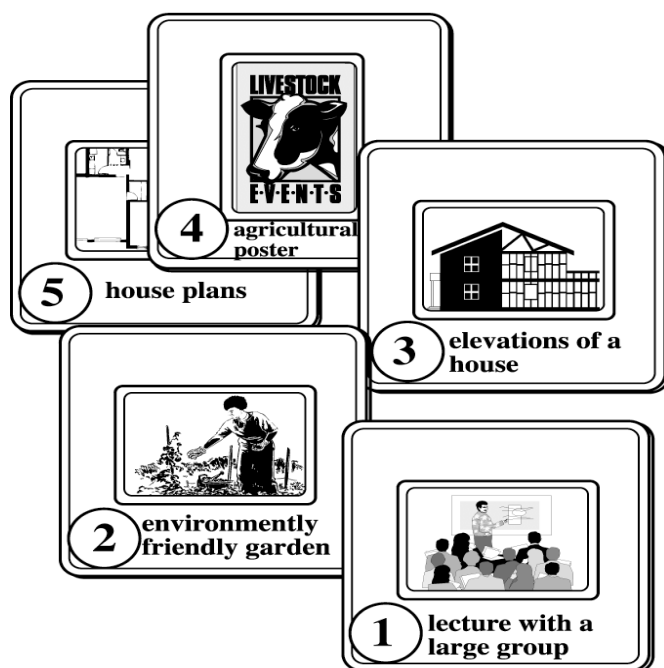
### **Ease of use**

Ease of use can mean adaptability, practicality, or ease of transport, setting up and presenting. Material that can be adapted easily to one or more different formats or situations (e.g. print to transparency) is preferable to material that has to be redone from scratch. When you design materials or select pre-produced materials you should consider how easily they can be adapted to other forms.

Practicality is an important consideration. How easy is it to duplicate the materials without losing detail or quality? Are they easy to produce and present or do you need special equipment or expertise? Will learners have any difficulty following or using the materials?

Print materials kept in ring binders are easier to duplicate than if they are bound. Large display materials (charts diagrams, posters) can be stored and transported rolled in cardboard cylinders but tend to curl and be difficult to hang. Mounting and laminating may make them easier to display but harder to transport. Mounted transparencies stored in folders will stay together and be easy to carry; sets of slides mounted and kept in separate carousels for each topic are ready to use at any time.

Numbering, labelling and clearly identifying material makes presenting a lot easier. Print materials can have headers and footers with information such as page number, topic, date, your name and any other important details. Transparencies can also have similar headers or footers. Number all transparencies and use that number as a reference in your notes to keep track of where you are.



Films, video and computer disks should be clearly labelled with title, date, topic, format (the video or computer system used) and your name.

Key features include:

- ease of production
- adaptability
- storage and transportation
- numbering and labelling

## Durability

Durability is about not only the physical aspects of a learning/instructional aid, but how long it will retain its usefulness and effectiveness. You should consider both when you produce or select an aid.

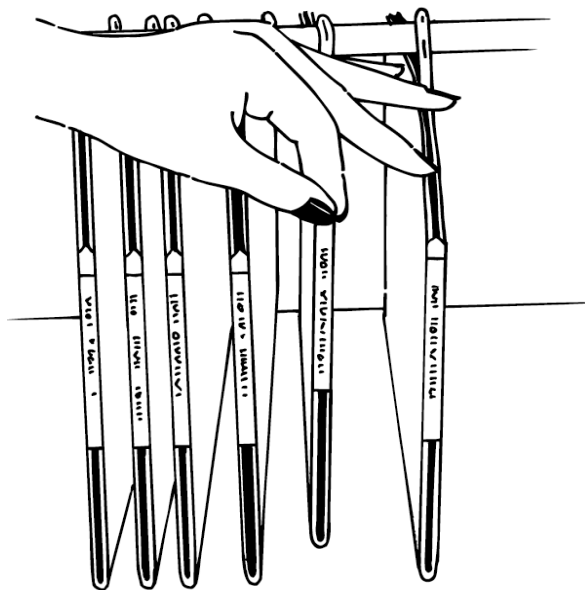
Physical durability will depend on the quality of the materials you use, how you care for the materials and how much they will be handled. Print materials wear out quickly with frequent handling and it's a good idea to keep a master copy that you only use for duplicating. Use plastic sleeves, laminating and strong covers to protect print materials.

All materials should be stored and transported in protective covering of some type to keep them clean and undamaged. Colour materials may fade if exposed to strong light for long periods; transparencies can fade or be scratched and slide mounts can be damaged and jam in the carousel. Film, video tapes and computer disks can be damaged by heat or liquid, and film, video tape and audio tape can become scratched and torn with age or frequent use.

The useable life of an aid will also depend on how long the content remains up to date. Print materials can date very quickly; technical information (e.g. processes, components, terminology) can change rapidly in a short space of time; computer software is constantly being updated and improved. Out-of-date learning/instructional aids need to be amended or replaced as soon as possible—which may be difficult or expensive.

Key features are:

- ability to withstand frequent use or handling
- protective measures
- methods of storage and transport
- need for and ease of updating/replacing



## Activity

1. List the design criteria you need to consider.
2. Why are layout and lettering important in presenting material?
3. List three reasons for using colour and provide a brief example of each.
4. What do 'clarity', 'readability' and logical order contribute to an aid?
5. What does the useable life of an aid depend on?

*Guidelines to activity responses are provided at the end of this unit.*

## Producing learning/instructional aids

This section provides information on producing a range of learning/instructional aids, including design considerations for specific aids. When you've selected your aid, developed your content and designed the presentation, you need to go back to your plan and check that you are fully prepared for production.

### Production tools

Before you start production you need to ensure that you have all the materials and tools you need. You may not have access to all the tools mentioned here, but you should be aware of what you need and if it's available.

The following points summarise tools that may be useful to you in producing aids:

- *Lettering*: If you prefer not to hand-write your lettering, or don't have access to a computer, you can use stencils, 'Letroset'-style instant lettering (a dry transfer system), or a lettering machine that produces lettering on a clear adhesive strip.
- *Colour*: Even if you don't have access to a colour photocopier or printer, you can add colour using coloured paper and pens or pencils (e.g. for charts and diagrams) or transparent overlays (for overhead transparencies). There is a wide range of these types of tools suitable for use with different materials
- *Computers*: Access to a computer will save you considerable time in preparing and printing text, charts diagrams and transparencies in black-and-white or colour. Good presentation software will enable you to produce material in several different formats—for print, display, transparency and computer projection and incorporation in video footage.
- *Computer software*: Computer software can range from simple word processing and layout packages to sophisticated presentation software. If you have access to a scanner, visual material such as photographs and illustrations can be scanned into the computer. There are computer packages that enable you to change the scanned image—remove or add detail, add captions or graphics, replace faces or objects.
- There are also collections of computer 'clip-art'—small pictures and drawings of people, objects and symbols—and that can be easily copied and adapted to illustrate materials.

- *Printers:* Printers can range from single colour ink-jet to laser black-and-white or colour printers. Some colour printers don't use transparent ink and are unsuitable for producing transparencies. Thermal printers are rarely used these days but produce excellent quality transparencies.
- *Photocopiers:* Copiers can range from basic black-and-white copiers to black-and-white and colour copiers with facilities for enlarging, reducing, producing half-tones (for copying photographs), copying onto film (transparencies), collating and stapling.
- *Photography:* If you have camera skills you can take your own photographs or slides and have them processed and mounted by a photographic service. Photographing illustrations is a special skill and requires equipment such as copy stand and macro lens to get good results.
- *Video equipment:* Home video equipment is light and relatively easy to use. Access to editing facilities will enable you to add animation and graphics or other still material or produce different versions for different uses using the same footage.

### **Charts and diagrams**

Charts and diagrams can be hand-drawn, copied and enlarged; copied and enlarged from pre-produced material; or produced using computer presentation software and printed on a black-and-white or colour printer.

Charts and diagrams must be large enough for everyone in the group to see and read easily—they can be produced as normal page size and enlarged on a photocopier. Very large charts or diagrams may need to be split into sections and hung side-by-side or one under the other.

If you're preparing this material by hand, try using graph paper to lay out your first draft to help you get the dimensions and proportions right. Always use a ruler for straight lines and angles. Draw lines using a thick pen so that they can be seen easily from a distance.

Try to avoid too much detail—it's hard to see from a distance. If it can't be avoided, try breaking down the information into smaller, linked charts or diagrams or use transparent overlays in flip chart style. Complete the chart or diagram first, then add lettering—don't add lettering as you go as you may have space and positioning problems later.



Colour will make charts and diagrams more interesting and sometimes easier to understand. Use different colours to distinguish overlapping lines or different components, to highlight individual information or to link related components. Choose colours carefully, as described in Design Criteria. You can add colour by hand with coloured pencils or pens, paints, coloured adhesive-backed paper or colour film.

Make sure lettering is easy to read, properly spaced and appropriately positioned. Try using all capitals for headings or major text and sentence case (a capital on the first letter only) for sub-text. This will mean you don't have to make the size of the sub-text smaller than the headings and harder to read. Don't use vertical lettering (lettering that goes down the page instead of across)—it's too hard to read from a distance.

Charts or diagrams for display need to be fairly robust. The best way to protect them is to mount them on heavy card or mounting board and laminate them. Think about how you're going to display the material—if it has to be pinned up, the corners will soon become marked and torn. Try attaching a strip of strong adhesive fabric to the back of mounted material with small eyelets sewn on to run a cord through. For non-mounted charts and diagrams, use heavy paper or card and fix wooden, plastic or metal strips at the top and bottom that will counteract curling and give you something to attach a hanging cord to.

### **Print materials**

Basic print materials you might want to prepare include handouts of notes, copies of diagrams and charts, and paper copies of projected materials. Print material should be clean, legible, well-presented and well-organised. It's hard to take a crumpled piece of paper with tiny print and illegible illustrations seriously!

If you have a lot of body text in print material, use a serif font rather than sans serif. Serif fonts have small tails on letters and are easier to read in blocks of text than sans serif fonts. As an example, the headings in this unit are in Helvetica, a sans serif font, and the body text is New Century Schoolbook, a serif font.

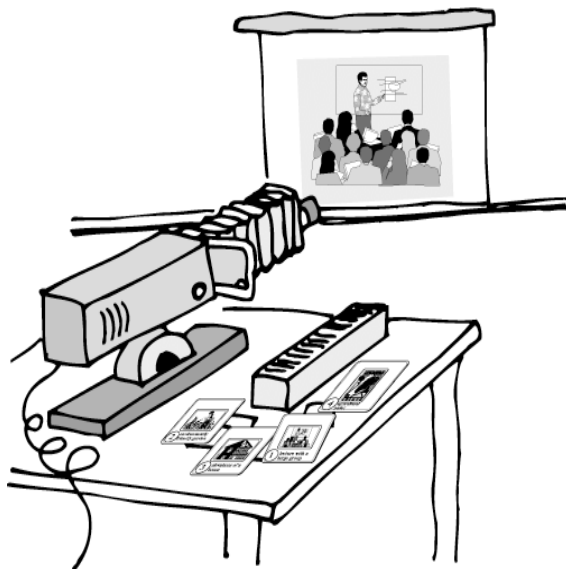
The spacing (leading) between lines of text should be at least two points larger than the size of the font; for example, this text is 12 point type over 14 point spacing. Leave extra space between points in a list, especially if they run over more than one line. Provide wide margins that allow room for comments and notes.

You can use colour for headings, illustrations and decoration, but remember some colours are hard to read or don't copy well. Red, green or yellow text is very difficult to read on a white background. Colour copying is also much more expensive than black-and-white.

If you're providing print copies of diagrams, charts or projected material, check that the copies are legible and positioned properly on the page. Some colour materials don't copy well or lose detail in black-and-white. Detailed diagrams may become illegible or lose meaning, particularly if you've used colour to indicate particular components or sequences. You may need to add more information or draw in detail to compensate.

You may need to enlarge or reduce material to suit the print format, and once again you should check the results carefully. Enlarging may reduce clarity and sharpness, while reducing may condense detail to a blur.

### Transparency projection



When you prepare or select material for transparency projection the most important thing to remember is that projectors project—they don't enlarge. What may look huge on the transparency or slide in front of you will look much smaller when it's projected and viewed from a distance. If you want text and detail to be seen clearly, you have to make it large enough to start with.

Computer presentation software usually includes templates for producing formats such as overhead transparency and slides and provides help mechanisms to guide you through the process.

Basic guidelines for preparing information for transparency projection using either overhead transparencies or slides include:

- use a design template to lay out your information
- use 24 point type as a minimum
- all lines at least 2 mm thick
- double space all text
- use a maximum of 10–12 lines of text per transparency
- use a plain, bold typeface (you can use underline or colour for headings)
- use short sentences and keep a clear border around the text
- use colour wherever possible, and contrasting colours for background and text
- keep graphs and diagrams as simple as possible using solid colours (red, green, blue) and clear labelling.

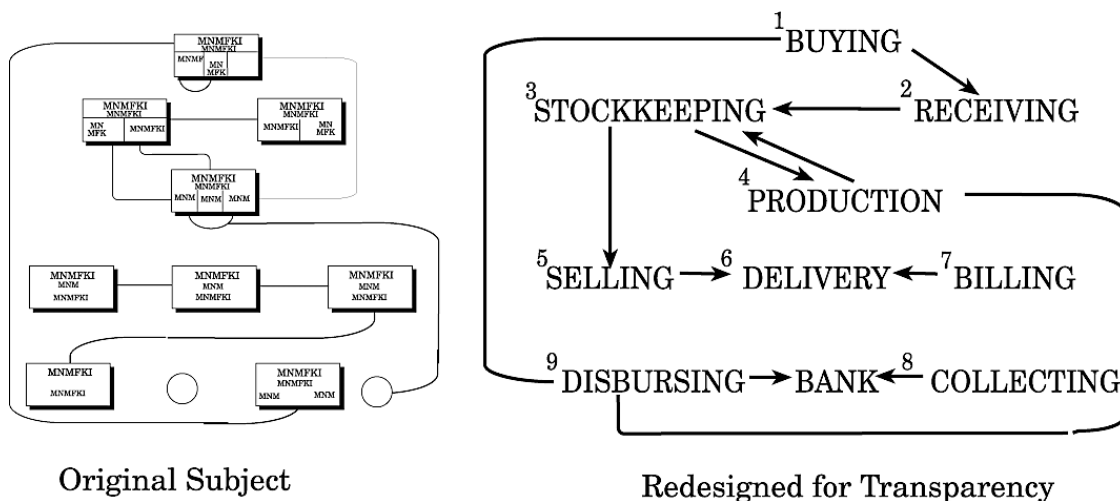
The most effective colours to use for projected materials are blue, green, yellow (text on a contrasting background) and white. Research has shown that yellow or white text on a dark blue background is most effective. Red text and backgrounds are least effective, but red makes a good highlight colour (borders, underlining etc.).

Graduated backgrounds can be very effective; for example, a background that starts as a mid-blue at the top of the screen and grades down to dark blue at the bottom. The effect promotes the text and makes it easier to read. Another technique for separating text from the background is to give it a three-dimensional effect using a 'drop shadow' on the letters.

Other hints for producing effective overhead transparencies and slides are provided below.

### ***Overhead transparencies***

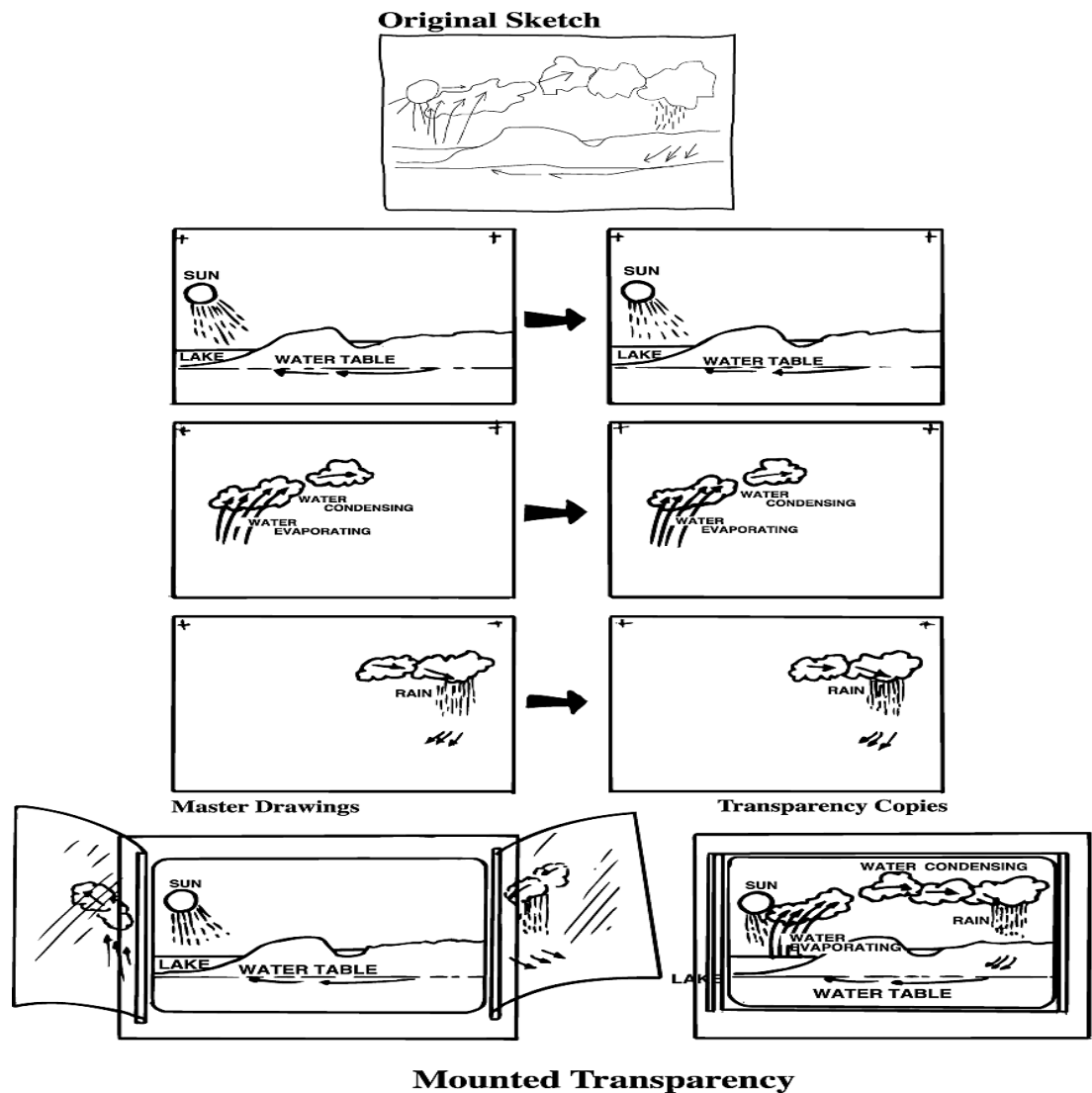
Your design template for preparing material for overhead transparency projection should be a 3 x 4 format—that is, the depth of the transparency should be three-quarters of the width.



Use overlays in contrasting colours to add detail if necessary or to build up an image or add points one by one. You can also use coloured film and overlays to add coloured shapes or blocks of colour to overhead transparencies.

If you are preparing overhead transparencies by hand, make sure you have the right coloured pens for the job. Overhead transparency pens use transparent ink that allows the light through. Non-transparent ink will show up as black when projected. Remember that some colour printers don't use transparent ink.

If you are doing hand lettering, try placing the transparency film on graph paper with 5 mm squares. Use the lines to guide the position and size of the text—5 mm text should be ample for projection and your lettering won't slope or be unevenly spaced.



Check that you are using the right film for the job—the wrong film will melt in the copier and cause major damage.

If you want to add information during the presentation, make sure you have the right pens and that you don't obscure information. If you have too much or too detailed information, summarise it on the transparency and provide full information on handouts. A transparency full of figures from margin to margin or long blocks of text is not an effective learning/instructional aid.

Mounting your transparencies will make them easier to handle and keep them in good condition. Store overhead transparencies in folders clearly marked with the topic so they are in order and ready to use when you want them.

Number your transparencies in the order you want to use them and label them with the topic, date prepared and any other important information, such as the source. This will help you keep them in order and identify the most recent version and where the material came from if you need to reproduce them.

## **Introduction**

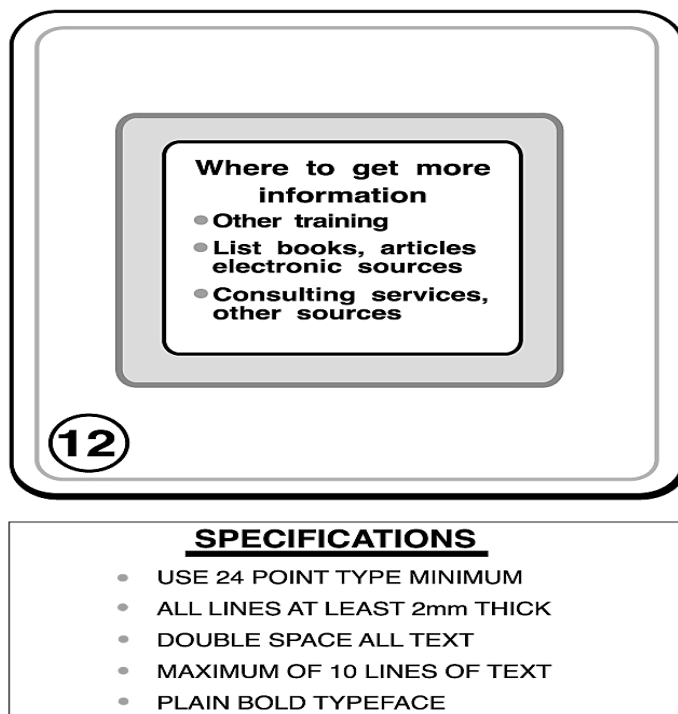
- **Define the subject matter**
- **State what the audience will learn in this session**
- **Find out any relevant background and interest of the audience**

### **SPECIFICATIONS**

- USE 24 POINT TYPE MINIMUM
- ALL LINES AT LEAST 2mm THICK
- DOUBLE SPACE ALL TEXT
- MAXIMUM OF 12 LINES OF TEXT
- PLAIN BOLD TYPEFACE

### **35 mm slides**

Slides can illustrate real objects or scenes or reproduce graphic images and text (illustrations, graphs, diagrams). Slides of graphic information can be easily produced using a template as a guide. Your design template for 35 mm slides should be 2 x 3 format—that is, the depth is two-thirds of the width.



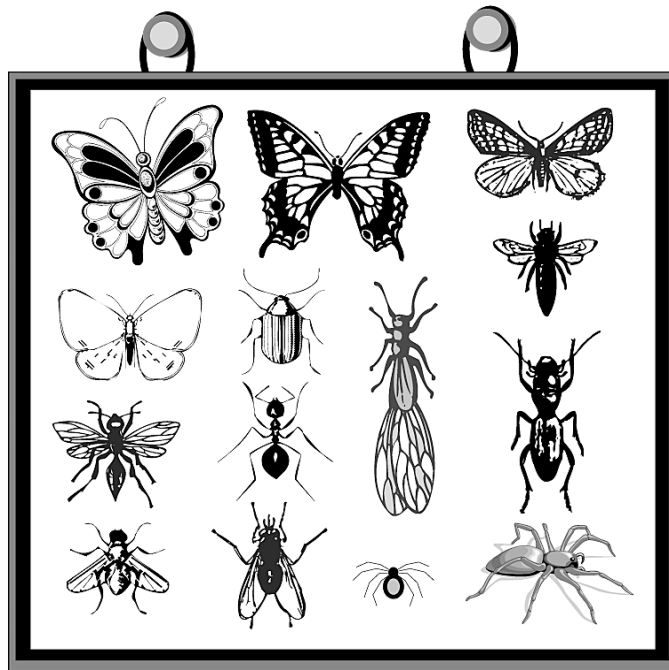
If you are using illustrations from a book, use a template slightly smaller than half a normal page (US letter) and then enlarge the image to full page size. This will ensure that the image is legible when projected.

Select your background carefully—plain or textured but not intrusive (see the guidelines for colour discussed earlier).

Remember that photographing some objects or illustrations for transparency can be tricky unless you have good photographic skills and the right equipment. Badly lit, poorly composed or out-of-focus slides are not effective aids. If you can't get the result you want, consult a professional service or choose another medium.

Number, date and title mounted slides to keep them in order. Store slide collections in their own carousel, clearly labelled, or in specially designed plastic sheets in ring binders.

## Realia



Realia, or real objects, are one of the most effective learning/instructional aids, but not always easy to present in the classroom. Rather than ‘producing’ realia, we are actually talking about ‘preparing’ it for presentation.

Common examples of realia are samples or specimens; for example, fabrics, components, tools, artefacts, foodstuffs, metals, geological specimens, plants, tissue samples. These samples or specimens can be small, fragile, easily damaged, or difficult to handle or display.

Preparation for presenting realia depends on the nature of the object to be presented—can it be seen by the whole group, does it need special lighting (e.g. ultraviolet), does it need to be protected from handling, what safety issues need to be considered, what supporting information do I need?

Perspex cases can be used to protect fragile items or prevent handling while allowing the object to be seen from all angles. Collections of small objects (e.g. geological specimens) can be mounted on boards or in trays. Larger and less fragile items can be displayed on a table where the group can move around the object, or passed around the group to be handled and inspected.



Labelling is important for collections of items. Labels should be printed clearly with short descriptive text. Additional information can be provided on handouts. Overhead transparencies can also be used to present information about an object while it is being handed around.

Very small objects may be a problem, particularly if you have a large group. A document camera connected to a video projector is an ideal solution—the object is placed under the document camera, which feeds the image to the video projector, which projects an enlarged image on to the screen. An object can be turned, specific features pointed out, or other objects placed next to it for comparison or contrast.

### **Computer screen projection**

Producing material for computer screen projection is very similar to preparing material for transparency projection. The presentation software package you use will provide the template for you (3 x 4 format) and enable you to adjust the layout of the information to suit the format.

The basic rules include:

- allow for use 24 point type as a minimum
- all lines at least 2 mm thick
- double space all text
- use a maximum of 8 lines of text per screen
- use a plain, bold typeface (use underline or colour for headings)
- use colour wherever possible, and contrasting colours for background and text.

Note that the recommended number of lines per image is less than for transparency projection. Guidelines on lettering, backgrounds and presenting graphs and diagrams are the same as for transparencies.

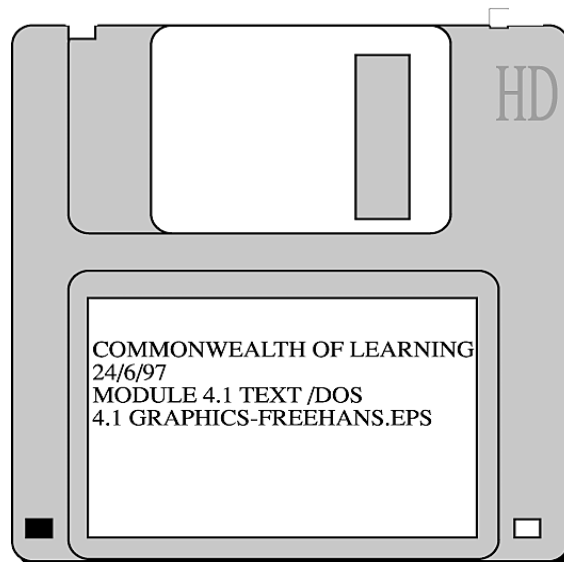
Ideally, you should use presentation software for preparing material for computer screen projection. Word processing packages or packages such as Excel are not suitable and may cause problems when you try to display material.

Presentation software will allow you to incorporate graphics, animation and video if required and enable you to prepare the same material for presentation in several different formats. Good presentation software usually includes a variety of templates and special help mechanisms to set up presentations.

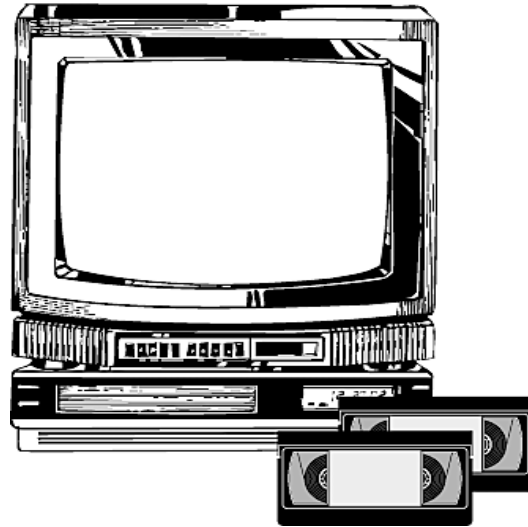
Specialist software can be used to change images significantly (even photographs)—cropping, removing or adding backgrounds or unwanted objects, changing original colours, adding or deleting text over images.

Producing material for computer screen projection needs some experience. Remember to allow time for becoming familiar with the software and make sure you have access to help if you need it.

Name your computer files clearly so that you know exactly what they contain and always label disks clearly.



## Television and videotapes



With advances in home video equipment, producing your own video programmes (and editing them) has become increasingly easy. However, a 'home-made' video will never look as smooth or 'professional' as a professionally produced video, and may suffer by comparison with what people are used to viewing on television.

Many educational institutions have video services with experienced staff who can help you with producing your own video or provide professionally produced material to your specification.

Basic points to consider remember when preparing for video production include:

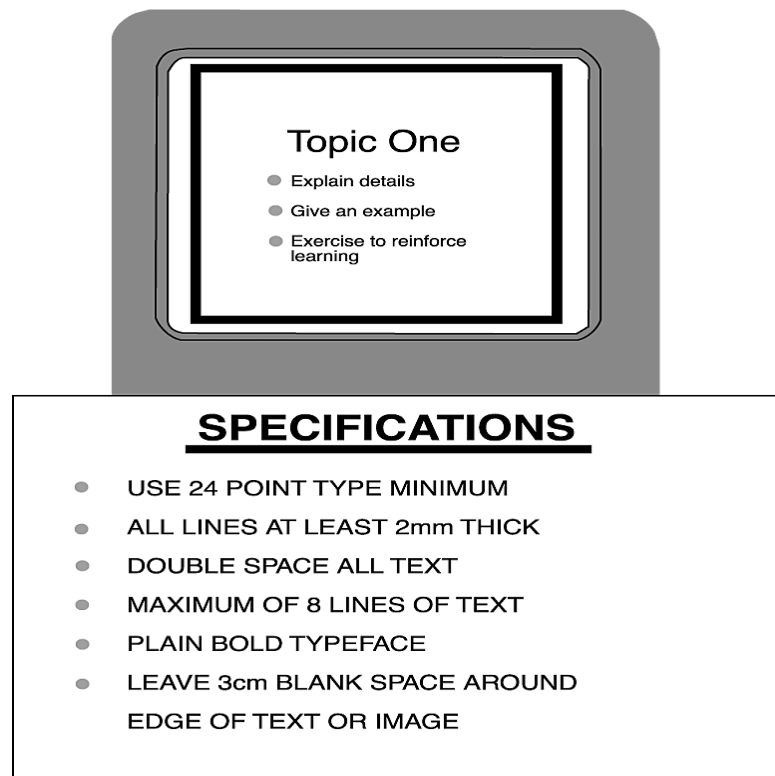
- get professional advice
- plan your content—decide if you need a script or a shot list
- ensure you are familiar with the equipment
- check the equipment and ensure that you have spare tape and batteries
- ensure you have adequate light and that noise or other intrusive factors are not going to be a problem.

If you have access to appropriate facilities, you can add commentary, music, graphics, still images, animation or other features in post-production.

If you are preparing still material (e.g. graphs, diagrams, text) for inclusion in a video programme the basic rules are the same as for computer screen projection:

- use a design template of 3 x 4
- use 24 point type as a minimum
- all lines at least 2 mm thick
- double space all text
- use a maximum of 8 lines of text per screen
- use a plain, bold typeface (you can use underline or colour for headings)
- use colour wherever possible, and contrasting colours for background and text.

In addition you should allow a margin of at least 3 cm of blank space around the edge of the image. Lettering and detail that extends right to the edge of the image will be lost when it appears on the television screen.



Guidelines on lettering, backgrounds, use of colour and presenting charts and diagrams are the same as for computer screen projection. Remember that some colours (e.g. red) can ‘flare’ on screen and blur the image. Intense patterns (e.g. checks or multicoloured designs) are also very hard on the eyes.

Videos of text without some form of illustration or commentary are not very stimulating to watch. Keep text to a minimum, break it up with ‘live’ action, illustrations or animation, and use handouts where appropriate. Make sure commentary matches the vision—don’t continue to talk about something when the camera has moved to the next shot or start talking about something your audience can’t see yet (unless you want to draw their attention to something that is coming up).

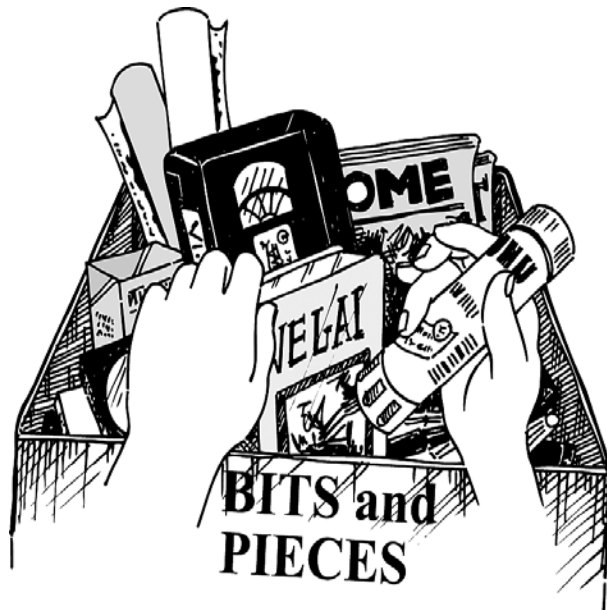
Continuity is often a problem in non-professionally produced video programmes. If your programme is produced over a period of days or weeks, it’s easy to forget what a presenter was wearing yesterday, where an object was placed originally, which angle a specimen was shot from, which of two similar illustrations or diagrams you used. It may be only a small difference but it can make editing footage difficult and distract your audience.

If you want to be able to pause the video at specific points for discussion, make sure you build in appropriate breaks in the script. Don’t pause the video mid-commentary or during a sequence of shots, unless you want to draw attention to a specific activity or feature. A black screen is better than a paused view of someone caught in mid-sentence, frozen with their mouth half-open.

A video that features only a ‘talking head’ behind a desk is not an effective aid. In face-to-face teaching, people use body language, move about, point to objects, write on white boards, look at individuals in the group. A video needs to provide the same visual stimulation—movement, expression, changes in perspective, alternative images.

Finally, keep it short. People conditioned by television are used to small ‘chunks’ of information and constantly changing scenery. Five to eight minutes for a presentation on a simple topic is ideal. Any longer than twenty minutes is usually too long for the average attention span. You will achieve more with five minutes of good presentation supported by handouts of detailed information, than with half-an-hour of information that is important but visually uninteresting.

## Adapting pre-produced material



If you have limited resources, budget, time or skills, pre-produced material that can be adapted to your specific purposes is an ideal solution. If good quality material is already available, it can be more cost-effective and time-saving to incorporate it than produce the material yourself. Pre-produced material can also enhance your aid and make it more effective.

The disadvantages of pre-produced material are that it may not be precisely what you require, may be difficult to adapt, or may pose continuity or consistency problems. Inconsistent style or quality, lack of continuity in format or presentation, different terminology or introduction of irrelevant or unfamiliar concepts may spoil a smooth presentation.

***Remember, copyright is a major issue when using and adapting pre-produced material. If it's not your own work, you don't necessarily have the right to use it, copy it or change it.***

Some pre-produced material (e.g. resource materials such as slide packages, clip-art, generic software) is designed to be used and adapted as required and does not have copyright restrictions.

If you are incorporating pre-produced materials, try to select those that come closest to your own format and style, or adapt your format and style accordingly. If this can't be done easily, try presenting the material as an individual component of the presentation rather than integrating it completely.

Print materials, illustrations, charts and diagrams, transparencies and slides can all be adapted using the production techniques described in previous sections (by hand, photocopying, computer presentation software).

Print materials can be edited to remove unwanted information, text, or illustrations or to incorporate your own material. You should check for consistency of style, terminology, spelling, use of colour and format. Use quotation marks and source names and captions to acknowledge copied or borrowed material, and indicate if the material has been adapted in some way.

The same applies to transparencies and material for computer screen projection—you can incorporate material as is or adapt it for presentation in a different format, style or context, but you must ensure you have permission to use or change the material and you should acknowledge your source if required. Once again, check for consistency.

Incorporating video and television materials raise issues of contrasting quality and continuity. Small 'bites' of video incorporated in computer screen projection presentations are not such a problem, particularly when the surrounding material is a different format—slides, text, illustrations, graphics.

Incorporating professionally produced video material in a home video production may make the amateur production look even more so. For a start the footage may have originally been shot on film or broadcast quality video (e.g. Beta cam)—it will look crisper and cleaner and the lighting will be different.

If you do want to incorporate this type of material (e.g. stock news footage, travelogue material, excerpts from a corporate video) make its source clear through on-screen graphics or in the commentary or the closing credits and in any handouts you provide.

It is not legal to copy and use material from broadcast television programs and commercially sold or hired films or videotapes. You need the permission of the television station and/or the producers. Footage is sometimes available for purchase from these sources, but is often expensive. There are also an increasing number of video and photographic 'libraries' that offer stock footage and photographs for sale on a variety of subjects.

## Summary

### Design criteria

- Use the design criteria guide for preparation of learning/instructional aids and to evaluate pre-produced aids.
- Well-designed layout and lettering will make materials visually attractive and easy to read and understand.
- Colour can add interest as well as be useful in highlighting, linking or contrasting information.
- Clear, appropriate illustrations can add interest as well as convey information.
- Clarity means well-presented information, in a logical order with clear headings and labelling.
- Readability means the information is physically easy to read as well as easy to understand.
- Information should be in a logical order, moving from the general to the specific.
- Aids should be easy to prepare, produce and use.
- The useful life of an aid depends as much on its content as it does on its physical durability.

### Producing learning/instructional aids

- Before you start production, ensure you have all the tools you need and that you are aware of other tools and resources available to you.
- Ensure charts and diagrams are large enough, not too detailed, and that lettering can be easily read from the back of the group.
- Print materials should be clean, legible, well presented and well organised.
- Use templates to design both overhead transparencies and 35 mm slides.
- Choose colours for transparency text and backgrounds carefully and ensure lettering is large enough.
- Number and label all transparencies.
- Prepare realia carefully—protect fragile objects, and label items clearly.



- Use a design template and/or presentation software (if available) to prepare material for computer projection.
- Plan video production carefully and seek professional advice if available.
- Use a design template to prepare still material to be included on video.
- Use selection and design criteria to evaluate pre-produced material to enhance or support your aids.
- Remember to check copyright restrictions before you use or adapt pre-produced materials.

## Activity

1. List five production tools you think would be useful in producing learning/instructional aids and match each to an aid.
2. Give a brief description of the sort of lettering you would use for charts and diagrams, for print materials and for transparency projection.
3. List three types of aid where you should use templates.
4. How would you prepare a collection of different types of small clamps for presentation to a group of twenty students?
5. What sort of things should you remember when planning a video production?

*Guidelines to activity responses are provided at the end of this unit.*

## Section 3



### Evaluating learning/instructional aids

Throughout selecting, planning, designing, developing and producing learning/instructional aids you apply various criteria (e.g. selection, design) to ensure you select and produce an effective aid. The ultimate test of an aid is how it performs in the teaching situation.

When you evaluate an aid you should look at both the response of the target audience and how well the aid has met your original criteria in practice.

### Pilot testing

Pilot testing means using the aid in an actual classroom situation and using your own observations and feedback from the group to evaluate the effectiveness of the aid. It's a good way to identify any weaknesses or problems for both you and the group, and to refine the aid to make it easier to use and more effective.

You can pilot test the aid by using it yourself or observing someone else using the aid, and by asking other teachers/instructors to use the aid and provide you with objective feedback on their and their groups' reactions.

## Using appropriate learner/user groups to pilot test instructional aids



Selecting an appropriate learner/user group to pilot test the aid is very important. You should select a learner group that matches the target audience of the aid. You can't make a proper evaluation if the group is larger/smaller than intended, the skill level is too low or too high, or the topic is irrelevant to the group.

You might want to test the aid with different groups later to see how well it can be adapted (see Testing Aids in Different Situations), but your initial focus should be on the original target group.

***Choose a test group that best meets the profile of your target audience in size, nature, skill level and learning activity.***

If you ask other teachers/instructors to use the aid, ensure that they understand the target audience and the purpose of the aid, know how to use the aid properly and will be using it with an appropriate group.

When you (or other users) test the aid:

- make sure you are well-rehearsed in using the aid
- allow plenty of time to set up
- if necessary, provide the group with any information they might need before the presentation begins (e.g. why you are using a particular aid or how it works)
- allow plenty of time for the group to react and for you to observe their reactions
- be critical—note both positive and negative reactions or features.

## Testing aids in different situations



The situations in which you use learning/instructional aids won't always be the same—group sizes may vary, the skill level or nature of the group may be different, the facilities, equipment or environment may change.

If the material is to be really valuable, you need to be able to use it in a variety of situations. It is to your and the learners' advantage to test it out in a variety of situations to see how well it works, how adaptable it is and what changes you might make to overcome any potential problems.

You can test aids with alternative groups and situations to evaluate adaptations or investigate what kind of adaptations you should make. Asking other teachers/instructors to help you test the aid will also expose it to a wider variety of groups and situations.

You might try:

- using materials in different formats—do display materials (charts, diagrams) convert well to projection materials, can projection materials be adapted easily for computer screen presentation, is a video tape of a working model effective, or would video projection of realia work with the group?
- testing the aid with groups of different sizes and skill levels—is it better to split the group into smaller groups (e.g. for realia, models), do I need to prepare separate aids for groups of different skill levels or can I use the same aid and simply skip some content?
- testing the aid in different facilities and room layouts and using different equipment—how well does it show up in a room you can't completely darken, will all the group be able to see clearly in a room with a different layout?

Focus on the same sorts of issues that you focused on when you tested the aid originally.

## Evaluation

You can evaluate the aid by experience and observation during the presentation, by inviting feedback (oral and written) from groups and users and by setting exercises and assignments that are designed to identify what the learners gained from the presentation.



Ways of collecting evaluation information include:

- taking notes during the session on the groups' reactions, any particular problems with using the aid and possible improvements you could make
- getting an observer to take notes for you and adding your own notes after the session
- asking questions about the information presented at the end of the presentation
- asking the group for oral feedback at the end of the presentation
- providing feedback forms to be filled out after the session
- setting specific exercises and assignments to be completed as soon as possible after the session
- providing other users with guidelines on what you want to know and feedback forms and assignments, and asking for oral and written feedback from them and their groups.



You should be focusing on:

- group reactions—interest, boredom, confusion, difficulty seeing, hearing or identifying information
- any problems with using the aid or associated equipment
- any learner difficulty in following or understanding the information being presented
- how the aid looks, sounds, performs
- any obvious areas for improvement or problems you hadn't expected.



# Sample A: Guidelines for Users and Observers

## Evaluation: Overhead transparency presentation

Please use the feedback forms and checklists provided.

### **General guidelines**

General guidelines are as follows.

### ***Group reactions***

Please look for the following: enthusiasm, interest, confusion, boredom, difficulty seeing or following information.

### ***Ease of use***

Please note any problems associated with using the aid or associated equipment and support materials; for example, difficult to set up, awkward to work with, time-consuming.

### ***Learner difficulties***

Please note any group or individual problems; for example, complaints during the session about visual quality, obvious difficulty in following information, questions that indicate information has been missed or misinterpreted.

### ***Presentation***

Note your overall reaction to the aid—is it visually interesting, is it easy to see, is the content good, are the support materials sufficient, does it perform well overall?

***Improvement***

Please note any areas for improvement—needs more or less information, could be better use of colour, messy layout, needs enlarging to be seen properly.

**Design criteria**

Your evaluation of this learning instructional aid should include the following criteria where applicable:

- layout
- lettering
- use of colour
- type of illustrations
- clarity
- readability
- logic
- ease of use
- durability

**Learning objectives**

Please note the learning objectives of the presentation:

- information
- illustration
- motivation

# Sample B: Feedback Questions for Users/Observers

## Evaluation of overhead transparency presentation

How would you rate the overhead transparency presentation against the following criteria (please tick):

Criteria	Good	Fair	Poor
Layout			
Lettering			
Use of colour			
Type of illustrations			
Clarity			
Readability			
Logic			
Ease of use			
Durability			

Comments:

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Were the learning objectives achieved?

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Did you note any specific problems with:

(a) the group?

(b) materials or equipment?

(c) the presentation?

Comments:

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Do you have any suggestions for improving the presentation?

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## Applying design criteria

The sorts of things you should be looking for in your pilot testing are the same sorts of things you took into consideration for your design criteria:

- layout
- lettering
- use of colour
- type of illustrations
- clarity
- readability
- logic
- ease of use
- durability

Include these features in your evaluation guidelines and your feedback questions.

### Layout

When you test an aid you should look critically at the way the information is laid out from the point of view of both user and learner.

Ask yourself:

- Does the information attract the eye?
- Is the content in a logical order—can you move easily through it and can the group follow it visually?
- Are the number and spacing of columns appropriate?
- Are headings and labels appropriately spaced and positioned and can the group distinguish them clearly?
- Is there too much or too little information—crowding or information split up unnecessarily?

## Lettering

Lettering should be clear, easy to read and big enough to be read from a distance. Depending on the type of materials you have used, you should also check that the lettering you use doesn't smudge, run or become detached with use.

Ask yourself:

- Is the lettering clear, even and easy to read, even from a distance?
- Is there enough space between lines and around headings?
- Have I used too many fonts or too much italics, bolding or underlining?
- What could I do to improve the lettering?

## Use of colour

Colour is sometimes difficult to get right first off—combinations that looked great on paper may not look as good on the 'big screen', or may prove difficult to read at a distance.

Ask yourself:

- Does the colour provide good contrast so that lettering and illustrations are easy to see?
- Are the colours bright enough, too bright in combination, or difficult to distinguish between?
- Is the background colour appropriate— does it need to be darker, lighter or would another colour work better?
- Is there too much or too little colour—is it confusing or too dull?
- Have the colours reproduced as you expected, or you need to adapt them for available production methods?

## Type of illustrations

Illustrations can lose detail when enlarged or reduced and this may not become completely evident until you test an aid. In addition too many, too few or badly placed illustrations can reduce the effectiveness of your presentation.



Ask yourself:

- Are illustrations crisp, clear, and easy to identify?
- Have they reproduced well?
- Are black and white illustrations as effective as the colour originals or have they lost important information?
- Are illustrations attractively and logically placed—do they relate clearly to surrounding information?
- Are there too many illustrations (confusing, distracting) or too few (insufficient information)?

### **Clarity**

Clarity will affect the learning effectiveness of the aid. Struggling to work out what is being presented does not make the task of understanding the information any easier. Observation of the group, feedback from learners and users and responses to exercises will help you to assess the clarity of the aid.

Ask yourself:

- Is the presentation clear—have the learners been able to identify the information and interpret it correctly?
- Is the material well-organised—are there clear headings and divisions of information?
- Are charts, diagrams, illustrations and text clearly identified and are relationships between information, components and processes easy to understand?
- Is the presentation consistent—are the same layouts, heading hierarchies, colour indicators and terminology used throughout for related concepts, processes, components and similar content?

### **Readability**

How physically and mentally easy the information is to interpret will play an important part in the effectiveness of an aid. A visually attractive presentation may let you down if the visual impression has been at the cost of ease of reading or less care has been taken with the language and structure.

Ask yourself:

- Are charts, diagrams, illustrations and text physically easy to read?
- Is material well-organised on the page and throughout the material?
- Is the language clear, concise and appropriate to the topic and the skill level?
- Are the heading hierarchy and labelling easy to distinguish, consistent and logically positioned?
- Is the presentation error-free in terms of spelling, terminology, correct labels and similar?

## **Logic**

Logic in presentation and structure is the key to clarity, readability and the overall effectiveness of the aid. If you have difficulty moving through and within the presentation or learners indicate they have problems following or locating information, the aid is not performing effectively.

Ask yourself:

- Is the information presented in a logical order—does it start with the general and move to the specific, do related concepts or processes follow on from one another?
- Is the relationship between different content presented clearly—are there clear textual or visual links?
- Are graphs, charts, illustrations located with the text that refers to them, are related topics grouped together?
- Is material integrated smoothly with logical movement between different formats; for example, from pre-produced material to your own, live action to graphics or animation?
- Does the commentary match the display—are the learners seeing what they are hearing about?

### **Ease of use**

Ease of use is important for you and other presenters. Aids that are time-consuming or complex to produce, set up or present may not be as effective because you are preoccupied with the mechanics rather than the content of the material.

In addition, learners can be distracted by setting-up procedures or adjustments that have to be made during a presentation.

Ask yourself:

- In retrospect, how easy was the aid to produce, set up and use—does the effectiveness of the aid justify the effort involved in production and setting up?
- Is it easy to adapt the aid to different formats and situations—how quickly can this be done (e.g. on the spot in emergencies) and is it still effective?
- Is storing and transporting the aid a problem and are there any ways of overcoming these problems?
- Is the numbering and labelling of materials satisfactory—do you need to add more information or find alternative systems of collating or identifying material?
- Were there any specific problems in using the aid that need to be addressed to make it more effective?

### **Durability**

By observing how well your materials stand up to use in the pilot tests you will be able to predict how long they are likely to stay in good condition and what you can do to prolong their life.

You can also assess how frequently you may need to replace or update material and the ease with which you will be able to do that.

Ask yourself:

- Does the aid show any sign of wear and tear after the first or a few uses?
- Were protective measures adequate or do you need to find better or other ways to protect material?
- Is the method of storage and transport effective, practical, easy to use and can it be improved?

- How easy is it to replace damaged or out-of-date material or to update part of the material and how often will this need to be done?

## Learning outcomes

The most important measurement of the effectiveness of an aid is how successful it has been assisting the learners to meet the learning objectives and achieving desired learning outcomes.

When you evaluate the aid, re-examine your original objectives; that is, was the aid designed to:

- inform
- explain
- illuminate
- motivate
- provide interactivity
- enable self-assessment.

You should also look at the information that the aid was intended to communicate and the skills that the learner should have gained from the learning activity.

When you evaluate the aid, ask yourself:

- Did the aid communicate the information clearly—did the group find it clear and easy to follow?
- Was the explanation adequate—did the group follow the logic and process of the explanation?
- Did the aid heighten the group's understanding of the topic and provide them with a better grasp of the concept or process?
- Was the group enthusiastic and responsive to the presentation?
- Was there ample opportunity for interaction by all members of the group and did learners take advantage of it?
- Was the group able to use the aid effectively for self-assessment and how much assistance or guidance was required?
- Do the results indicate that all or most of the group have achieved the desired learning objectives and outcomes?
- Did any members of the group have problems with the presentation and are there any obvious weaknesses in the effectiveness of the aid?

Learner responses during post-presentation discussion and the results of exercises and assignments will give you a clear impression of whether the aid has enhanced the learning experience and how successfully desired learning outcomes have been achieved.

## **Applying results of pilot testing**

Before you conduct your pilot testing, you should prepare guidelines for yourself and other users as to the objectives of the testing and what specific things you are looking for (see the section 'Evaluation').

Your evaluation should be based on your design criteria and the learning objectives and outcomes you wish to achieve. To ensure you have applied the criteria, prepare a checklist that you can use to identify the various features you are evaluating and record the aid's performance next to each item.



# Sample C: Evaluation Checklist

## Evaluation checklist for overhead transparency presentation

Topic: Food processing techniques

Description: Twelve colour transparencies including three diagrams.

Support materials: Handouts of diagrams and questions.

Learning objectives: Explain three different approaches to packaging, illustrated by diagrams, and provide questions to motivate discussion.

Design criteria (please tick appropriate response)

Criteria	Good	Fair	Poor
Layout			
Lettering			
Use of colour			
Type of illustrations			
Clarity			
Readability			
Logic			
Ease of use			
Durability			
Comments:			

Achievement of objectives (please tick appropriate response)

Objective	Satisfactory	Unsatisfactory
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Explanation

Communicate information

Demonstrate processes

Illustrate with diagrams

Motivate to discuss

Comments:

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Areas for improvement:

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Overall rating

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You will need to examine the results of:

- your and other users' observations during the presentation
- post-presentation oral feedback
- written feedback from users/learners
- exercises and assignments.

Compare these results to the desired features and outcomes in your checklist. You can then assess the aid on how well it satisfied the



presentation and performance criteria, and identify any problem areas or necessary amendments.

Remember to consider any factors that might have affected the presentation—a larger/smaller group than expected, an inexperienced user, any unexpected interruptions, equipment failure, environmental problems (power, air-conditioning or heating failure).

## Evaluating pre-produced aids

Pre-produced aids need to be evaluated against criteria that meet your specific needs. As these aids are often designed to be used in a broad variety of situations for an equally broad range of purposes, you need to ensure that they will meet your needs or can be adapted to meet those requirements.

In addition to applying the criteria outlined previously for evaluation, you should also ask:

- Is the material of good quality, relevant, aimed at the right skill level and up-to-date?
- Is all or only part of the material appropriate to your needs and those of the learner?
- Is the material consistent with other material you are presenting or will it need modification?
- Can the material be edited or adapted easily for your purpose?
- Can you produce similar material more cheaply and better suited to your purpose?
- In pilot testing, has the material lived up to your expectations?

You can adapt your checklist to incorporate these factors.

## Summary

- Pilot testing will help you to identify any weaknesses or problems with the aid and what needs to be changed or improved.
- The trial learner/user group should be appropriate to the aid in size, skill level and learning activity.
- Testing aids in different situations will demonstrate their adaptability and flexibility.

- Evaluation information can be obtained by observation, questions, oral and written feedback, targeted assignments, and feedback from other users and groups.
- Reapplying the design criteria will help you judge if the aid has satisfied the criteria adequately.
- Learning outcomes are the most important measure of how effective a learning/instructional aid is.
- A checklist will enable you to compare the results of your pilot testing and evaluation with the original criteria and identify weak points.
- Pre-produced aids should be evaluated to ensure they meet your requirements and the criteria.

## Activity

1. Explain briefly what pilot testing is and why an appropriate learner/user group is needed.
2. What will testing different aids with different groups help you to establish?
3. List five ways of collecting evaluation information.
4. Apply the design criteria to some material of your choice (learning/instructional aid, newspaper or television advertisement, poster) and briefly describe the result and if the material is effective or not.
5. What sort of things you should ask yourself when evaluating achievement of learning outcomes?
6. Briefly describe how you would apply the results of pilot testing an aid you have produced.
7. What sort of things should you ask yourself when evaluating pre-produced aids?

*Guidelines to activity responses are provided at the end of this unit.*

## **Assignment No. 4.2 – 2**

### **Unit 4.2 – Production of Learning/Instructional Aids**

You are now required to do the **Assignment 4.2 – 2** which will be found at the end of this unit or distributed by your Tutor.

If you have any questions relating to the assignment or the assessment, please don't hesitate to contact your Tutor.

# Exercise response guidelines

The exercise questions are designed to allow you to check your understanding of the information and your progress through the unit.

The guidelines provided here will give you a basic idea of the information your responses should contain. If you have any difficulties or questions, please contact your tutor.

## Introduction

1. Your answer should refer to how planning can help you to ensure you are well prepared, have everything you need and that you can present the aid effectively.
2. Your answer should include reference to ease of use, visual appeal, clear and effective presentation of information, achievement of learning objectives.
3. Your decision to produce an aid yourself should be based on the available skills, resources, materials, equipment, budget and time available.
4. Pre-produced aids are ready to use aids and materials available from various sources for your use or adaptation. You may choose to use them because you do not have the time, skills or resources in-house or because the material is high quality and particularly suited to your objectives.
5. You should always check the copyright requirements before you use or adapt pre-produced material and seek permission from the author or producer if necessary.

## **Section 1**

### **Selection criteria**

1. The selection criteria include the learning activity, objectives, type of information, target audience, group size, facilities, resources, environment, cost, time available for preparation and presentation and practicality.
2. The common objectives are information, explanation, illumination, motivation, interactivity and self-assessment.
3. Your answer should include points such as the need to take into account active and passive activities, allow for discussion, avoid lengthy interruptions, match learners' skills and learning pace.
4. Time should be included as a cost because your time is a valuable resource. If you are not sure how much your time is worth, divide your weekly income by the number of hours you work each week. This will give you an approximate guide to what one hour of your time is worth in monetary terms.
5. Your answer should include factors such as ease of preparation, transport, setting up and use, and equipment required, cost and time.

### **Development and production**

1. The steps you use include analysing the task, objectives, motivational and educational components, sequencing of the materials, technical content, costing, choosing the appropriate materials, adaptability and incorporating pre-produced material.
2. To analyse the task you should examine what you want to produce and why; what content you have and need; what materials, resources, equipment and facilities you need; what support materials you want to prepare; and what special arrangements you need to make.
3. Your answer should include that sequencing can help you organise technical content, break it down into smaller 'chunks' and ensure technical detail is presented in logical order.

4. Your answer should include costs of materials, resources, equipment, production and time and any other incidental costs (e.g. transport)
5. Pre-produced material is ready to use, can be of better quality than material produced in-house and may be able to be adapted or incorporated in your own material. However, it may also contain unnecessary or unwanted content, the quality and presentation may not be consistent with your material, and copyright restrictions may apply.

## **Section 2**

### **Design criteria for learning/instructional aids**

1. Design criteria include layout, lettering, use of colour, type of illustrations, clarity, readability, logic, ease of use and durability.
2. Your answer should include reference to visual appeal, ease of reading, ease of identifying headings and labels, and ability to be seen easily from a distance.
3. Your reasons for using colour could include visual interest; to distinguish different information, components or relationships, to show continuity; to identify specific items or components, to highlight or to provide a background.
4. Clarity, readability and logical order ensure that your material is physically easy to read, that the information is easy to understand and that the sequence of information is easy to follow.
5. Your answer should include reference to physical durability (e.g. how the material withstands frequent handling and use) and life of the content (e.g. if and how often it needs to be updated).

### **Producing learning/instructional aids**

1. Your list of production tools could include stencils and adhesive lettering, a computer, presentation software, printer, photocopier, camera or video camera. Your answer should link an aid to each tool; for example, stencils for chart, colour printer for coloured diagrams.

2. Your answer should include reference to the type of font and the size, line spacing, use of “bold”, colour, etc., suitable for each of the three types of material.
3. Types of aid that require templates include overhead transparencies, 35mm slides, and graphic material for inclusion in video programs.
4. Your answer should include reference to mounting and displaying the collection, any support materials, and how you might organise the group to view the collection.
5. Basic things to remember for video production include getting professional advice, planning content, becoming familiar with equipment, ensuring everything works and that you have spare batteries and tapes, ensuring the environment is suitable, and using templates for still material.

### **Section 3**

1. Pilot testing means using the aid in the classroom under normal classroom conditions. You need an appropriate user/learner group to ensure that you can evaluate the aid properly in terms of the design criteria and the learning objectives.
2. Testing aids in different situations will enable you to evaluate the flexibility and adaptability of the aid. You can use different situations to test different aspects of the aid, to develop adaptations and to test those adaptations.
3. Your answer could include observation and note taking, questions at the end of the presentation, oral and written feedback, exercises and assignments targeting information presented using the aid, as well as feedback from other users and their learner groups.
4. Your answer should identify the material selected and its purpose, and explain what criteria you applied and how the material rated against those criteria.
5. Your answer should include questions related to the quality and success of communication, explanation, understanding, motivation, interaction, self assessment and achievement of learning objectives, and any specific weaknesses or problems.



6. Your description should identify the aid and your objectives and include the sources of your evaluation information and how you organised your evaluation.
7. Evaluating pre-produced aids requires additional evaluation to that applied to aids you produce yourself. Your answer should include evaluation of the quality, relevance, target audience and date of the information. You should also include considerations of the need for and ease of adapting the material, the comparative cost and the results of pilot testing compared with your expectations.



# Assessment Instrument

## Module 4      Learning Resources

### Unit 4.2      Production of Learning/Instructional Aids

#### Assignment 1

This assignment has been designed as a combination of completion, true/false and short answer type questions and it tests whether you have an understanding of the basic concepts of, and applications for, learning resources.

#### Question 1

Question one requires you to unscramble the five elements that need to be considered in effective instructional aid design. All words must be accurately unscrambled to achieve the level of competence required. Should you not achieve this level of competence, you may resubmit the assignment without penalty.

#### Question 2

Requires a word to be inserted in each blank. There are ten blanks and all responses must be correct to achieve the level of competence required.

#### Question 3

Asks you to decide whether the instructional media used in each of the five examples is appropriate, and if not, give reasons for your answer as well as recommending an alternative.

Four out of the five must be answered appropriately to gain the required competence.



# Assignment 1

## Unit 4.2 Production of Learning/Instructional Aids

To be completed and returned to your tutor for assessment.

This is an Open Book assignment and you may use whatever resources you have at your disposal.

**Name:** ..... **Due Date:** .....

### Question 1

- 1.1 A number of elements impact on the effectiveness of instructional aids. Unscramble the words below to find out what these elements are:

UAFCRL - LGNNPAI ..... ..

IEENOCSLT ..... ..

ISEGDN ..... ..

AEUSG ..... ..

- 1.2 Complete the following statements, using the words in the list below.

Design criteria can help produce effective instructional aids by ensuring that:

1.2.1 the ..... is covered

1.2.2 all ..... and resources are available

1.2.3 the finished product is easy to ..... and ..... to  
.....

1.2.4 trainees find them easy to .....

1.2.5 they achieve their .....

1.2.6 they are ..... but .....

*simple, content, appealing, objective, understand,*

*necessary, materials, use, handle, easy*

## **Question 2**

Consider each of the following learning activities and the instructional aid selected. State whether the aid or method of presentation is appropriate or not and give your reasons. Suggest an alternative if it is not an appropriate approach:

- 2.1 A teacher is using a small model to demonstrate building techniques in a large lecture theatre without a video projector.
- 2.2 A large group (thirty students) is having a practical lesson in slicing and cutting vegetables using sharp knives. There is insufficient room or bench space to divide the group into smaller groups.
- 2.3 A teacher is using an overhead projector to display hand-written notes to a group of twenty students.
- 2.4 A teacher is demonstrating complex mathematical calculations to a group. The room is long and narrow and the teacher is using a chalkboard for calculations.
- 2.5 A twenty-minute video on cleaning and sanitation has been provided by a multi national company, free of charge. The video is designed for use in another country and is culturally irrelevant to the learner group. In addition, only a fraction of the limited technical content is useful.

# Assessment Instrument

## Module 4 Learning Resources

### Unit 4.2 Production of Learning/Instructional Aids

#### Assignment 2

This assignment calls upon your experience as an instructor or teacher to develop a learning aid for a lesson of your choice. The earlier questions require you to think carefully about the considerations for the design of effective instructional aids and the resources and skills required to complete the production task.

#### Question 1

Question one requires you to determine whether each statement is either true or false. Correct responses are required for 80 % of the responses, which equates to 12 out of 16 being accurate. In addition, no more than 2 parts of each section should be incorrect. Should you not achieve the level of competency required, you may resubmit the assignment without penalty.

#### Question 2

In this question you are required to identify the resources and skills required to produce three given instructional aids. A minimum of four items must be able to be identified for each item to reach the competence required and be awarded the total marks allocated. No less than four sections should attain this set of criteria for the level of competence required for this question.

#### Question 3

You are required to produce the learning aid of your choice and pilot test it, presenting a written report of the evaluation.

To achieve competency you will need to:

- ☐ Select appropriate materials to be used as an instructional aid and prepare a plan for their development

- ☐ Produce and prepare the selected materials for presentation according to the plan
- ☐ Pilot test the materials with an appropriate group and conduct an evaluation
- ☐ Prepare a written report that includes the following:
  - A description of the written materials
  - Criteria used for evaluation
  - Outcomes achieved
  - Detailed costing



## Assignment 2

### Unit 4.2 Production of Learning /Instructional Aids

To be completed and returned to your tutor for assessment.

This is an Open Book assignment and you may use whatever resources you have at your disposal.

**Name:** ..... **Due Date:** .....

#### Question 1

Answer True or False to the following:

When designing and producing:

- 1.1 Charts:
- Ensure the information is large enough to be seen .....
  - Use colour very sparingly .....
  - Choose an appropriate lettering size .....
  - Protect the finished product by avoiding regular use. ....
- 1.2 Handouts:
- It is more important for handouts to be attractive than really legible .....
  - Choose a sans serif font for readability .....
  - Layout is not as important as content .....
  - Use 14 point on 12 point .....
- 1.3 OHT:
- Use 12 point lettering .....
  - Use 5mm lines .....
  - Use 14 point spacing .....
  - Keep sentences short and simple .....

When presenting with:

- 1.4 Realia:
- Realia is always the best choice of instructional aid. ....
  - Group size is not important .....
  - Some examples of realia may require consideration of safety issues .....
  - Labelling is important in display of realia .....

## Question 2

Complete the table below by inserting resources and materials and the skills needed to produce each of the following:

Instructional Aid	Materials/resources	Skills
2.1 Flow chart for a 3 stage manufacturing process  Assume it is a wall chart		
2.2 Slide presentation on a local tourist spot		
2.3 A short video on food preparation		

**Question 3**

- 3.1 Select appropriate materials to be used as an instructional aid in a nominated learning activity (chosen in discussion with your Tutor). Prepare a plan for designing, producing and evaluating the materials.
- 3.2 Produce and prepare the selected materials for presentation according to the plan developed.
- 3.3 Pilot test the material with an appropriate group and conduct an evaluation
- 3.4 Prepare a written report that includes the following:
  - A description of the materials
  - Criteria used for evaluation
  - Outcomes achieved
  - Detailed costing.

Your Tutor will discuss with you arrangements for completing the activities in Question 3 of this assignment.

