

Application of Multimedia Technology in Adult Education

ACU 07319

**Institute of Adult Education
Adult and Continuing Education Studies Department
Bachelor of Adult Education and Community Development – Through ODL**

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About this module

This module has been produced by the Institute of Adult Education. All modules are structured in the same way, as outlined below.

How this module is structured

The module overview:

Dear learner, the module overview gives you a general introduction to the module. Information contained in the module overview will help you determine:

- If the module is suitable for you
- What you will need to know
- What you can expect from the module
- How much time you will need to invest to complete the module.

The overview also provides guidance on:

- Study skills
- Where to get help
- Unit assignments and assessments
- Activity icons
- Units

We strongly recommend that you read the overview *carefully* before starting your learning

The module content:

The module is broken down into units. Each unit comprises:

- An introduction to the unit content
- Terminologies
- Core content of the unit with a variety of learning activities



- Unit reflection
- Unit assignments

Resources:

For those interested in learning more on this subject, we provide you with a list of additional resources at the end of this module.

Your comments:

Dear learner, after completing this module, we would appreciate it if you would take a few moments to give us your feedback on any aspect of this module. Your feedback might include comments on:

- Module content and structure
- Module reading materials and resources
- Unit assignments
- Module assessments
- Module duration
- Module support (assigned tutors, technical help, etc.)

Your feedback will help us to improve this module.



Module overview

Welcome to this module

Dear learner, this module material is prepared as learning guiding and reference notes for the IAE's higher diploma students who learn through open and distance learning mode. It is prepared in such a way that it will be complemented by face-to-face teaching and learning sessions for clarifications and the use of other reference materials. The purpose of the module is to develop among learners' competences on important issues concerning multimedia technology in adult education programmes. Welcome!

General competence



To develop among learners' competences on important issues concerning multimedia technology in adult education programmes.

Study skills



Essentially, you will be taking control of your learning environment. As a result, you will need to consider performance issues related to time management, goal setting, stress management, etc. Perhaps you will also need to acquaint yourself with areas such as essay planning, coping with exams, and using the web as a learning resource.

Your most significant considerations will be time and space, i.e., the time you dedicate to your learning and the environment in which you engage in that learning.

Need help?



Dear learner, in the course of your study, you may need help with various issues such as the location of and how to get support from resource centres, clarification of various issues pertaining to your study materials, i.e., modules, and so on. If this happens, you are advised to ask for help from your centre coordinator or facilitator. You can also visit the website of the Institute of Adult Education, which is www.iae.ac.tz, or call +255 22 2150838 and ask for help.

Module assessment











After each unit, you will be required to attempt a one-unit assignment. This is not meant for submission, rather, for reflection on what you have learned in the whole module. You will also do tests and assignments for submission as guided by your module facilitator. Finally, you will sit for semester examinations to accomplish your assessment.

Getting around this module

Margin icons

While working through this MODULE, you will notice the frequent use of margin icons. These icons serve to “signpost” a particular piece of text, a new task or change in activity. They have been included to help you to find your way around the MODULE.

A complete icon set is shown below. We suggest that you familiarize yourself with them and their meaning before starting your study.

 Reflection	 Assessment	 Assignment	 Help
 Learning Outcomes	 Module Outcome	 Help	 Reflection



Unit 1

Demonstrate Knowledge on Multimedia and Educational Technology

Introduction

Dear learner, you are welcome to unit one of the multimedia Technology in Adult Education. In this unit, you will be introduced to key terms and concepts, which will be used throughout this module and the programme in general. The unit also presents the major types of multimedia as well as its importance in adult education. Welcome.

Learning Outcomes

Dear learner, upon completion of this unit, you should be able to:

- Define multimedia, educational technology, technology;
- Describe major types of multimedia; and
- Explain importance of multimedia and educational technology in adult education programmes.

Definition of Key Concepts

This section focuses on defining key concepts and terms related to multimedia technology and adult education like multimedia, educational technology, technology, adult education etc in order to assist you to develop and acquire a correct conception of these terms and use them interchangeably. Relevant concepts to be considered in relation to the term multimedia technology and adult education include the following:

What is Multimedia?

Dear learner, the word multi comes from a Latin word “Multus”. It refers to many or multiple and the word media means a tool of communication used to present or convey something. For example, newspaper, radio, television, internet and social media. Dear learner, nowadays, people can use different forms of media such as text, sound, graphic, animation and video to send and receive information. By mixing of different form of media that uses

different content form together is called multimedia. This means that multimedia is about communicating in several ways by mixing different forms of media that use different content forms together. Therefore, multimedia is best defined as a combination of text, images, audio, animation and video in which information can be represented, stored, transmitted and processes in digital form. Mariki's definition (2016) asserts that multimedia is a mixture of text, images, audio and video with the assistance of technology. In this view, the term multimedia refers to the computer-assisted integration of text, drawings, still and moving images(videos) graphics, audio, animation, and any other media in which any type of information can be expressed, stored, communicated, and processed digitally. See the below figure 1.

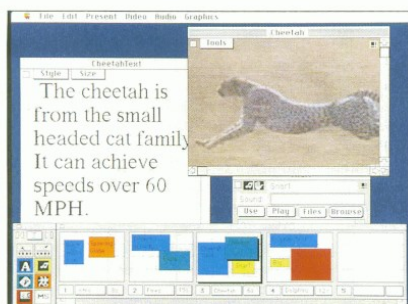


Figure 3. The Multimedia Works Composer storyboard for design of multimedia documents.



Figure 4. A display scene from a Multimedia Works document, with play icons for the sound and video elements of that scene.

tools from a menu within the Composer and then import the media files produced into their composition.

Students create media elements by clicking on one of the five media type icons on the media-creation palette (shown in Figure 3). For example, a user creating a text element is led through a dialog box process to (1) name the text card; (2) choose its

media element from a display view to an edit view, and clicking on the button located in the upper right corner of that element's edit view window returns it to display view.

Three different processes present the composition. A standard method of using the Composer involves moving back and forth between scene design and viewing the media elements for

Elements of Multimedia

There are five types of multimedia elements, namely; text, images, audio, animation and video. Dear learner, each multimedia element has a role to play. Now, let us look at each element.

1. Text

Dear learner, it is important to note that all multimedia contain some amount of text. Text can be defined as forms of words, sentences and paragraphs used to communicate thoughts, ideas and facts. Text elements can be grouped into alphabet characters (A-Z), numbers (0-9), special characters (,; ' ') signs and symbols (&\$).

As indicated in the below diagram.



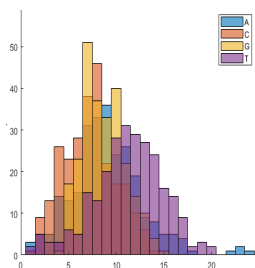
typography refers to the art of arranging type to make written languages legible, readable and appealing when displayed. Dear learner, depending on the use text can be of different font and size such as 12, 14 and so on. For example, text can be in general format (plan text), fixed size, rich text, hypertext, or pdf. The term font refers to weight, width and styles that make a typeface while font style can be bold, italic, underline and superscript are some of the few examples we can mention.

Dear learner, below are the role of text in multimedia.

- i) we use text for writing heading or title, bullet, list, paragraph, scrolling text, navigation and text as graphics.
- ii) Text can be used to structure and present information.
- iii) Text is used for clarity and efficiency
- iv) Text is used to explain how things work
- v) Text is used to express abstract and concepts

2. Images

Dear learner, through images, we create contact with the viewer and exchange of information in a visual form. Image is sometimes known as graphics; images make multimedia attractive. They are representation of non-text information such as drawing, charts or photograph.





Dear learner, Images captured through camera or scanners are known as bitmaps. These are real images. However, those drawn using computer are called vectors images.

Dear learner, we use graphics to do the following:

- i) To add emphasis
- ii) To direct attention
- iii) To illustrate concepts
- iv) To provide background content

Dear learner, it is important to note that graphic help us to improve our understanding by reinforcing information. Therefore, makes it easier, faster and clearer than words. The use of graphics attract interest to the content to get better idea of what is the message

3. Audio/Sound

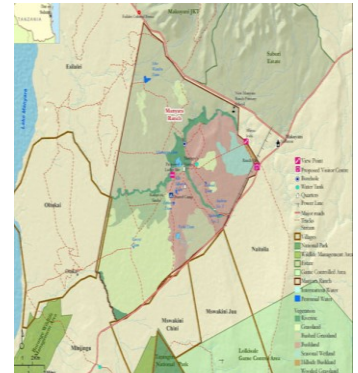
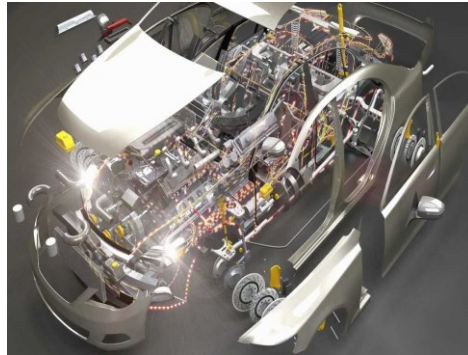
Dear learner, audio is sometimes referred to as sound. It is the best way to attract attention. Therefore, audio is used to support other media being presented. For, example, audio can be combined in a multimedia presentation to give information and enhance other media being presented. Dear learner, multimedia application can require the use of speech, music or sound effects. Audio is used to:

- i) To give instructions
- ii) To engage the audience
- iii) Increase production value
- iv) To show emotion
- v) To dramatize a point
- vi) To emphasizes what's on the screen
- vii) To create mood

4. Animation

Animation is the process of making static images look like they are moving (See the below figure). They are mostly used to simplifies complex ideas, or demonstrate or illustrate a concept. Hence it increases viewers understanding. Dear learner, animations are divided into two groups.

1. Cel based, which shows the drawing appearing to move, For example, operations of an engine's crankshaft.
2. Object based, in object-based animation, the object does not change. For example, the map of Dodoma region, showing grazing areas using slide arrows.



5. Video

Dear learner, video is the technology of electronically capturing, recording, processing, storing, transmitting and reconstructing a sequence of images representing scenes in motion. In multimedia application, we use video is used to stimulate interest to the rest of the information. Further, it gives examples of experiences or issues referred in the text. It is a representation of information by using visualization capabilities of video. Dear learner, videos are taken from life and can be used tell learners what to do.





Multimedia Terminologies

Dear learner, there are different multimedia terminologies that will keep coming across in this module. These terminologies include multimedia, multimedia learning, and multimedia instruction. Now, let us look at the meaning of each terminology:

1. **Multimedia** refers to presenting words (such as printed text or spoken text) and pictures (such as illustrations, photos, animation, or video).
2. **Multimedia learning** means building mental representations from words and pictures.
3. **Multimedia instruction** this refers to designing multimedia presentations in ways that help people build mental representations. This occurs when one is presenting words and pictures that are intended to promote learning.
4. **Multimedia learning**, this refers to the process by which people build mental representations from words and pictures. This occurs when people build mental representations from words (such as spoken text or printed text) and pictures (such as illustrations, photos, animation, or video).
5. **Multimedia Technology**, this refers to the use of **computer-based** applications that allow people to communicate ideas and information with digital and print elements. Professionals in the field use computer software to develop and manage online graphics and content. The work that media technology specialists produce is used in various media, such as training programs, web pages, and news sites.
6. **Educational technology**, **this** refers to a systematic way of designing, implementing and evaluating the total process of learning and teaching by employing the combination of human and non-human resources to bring about effective instruction. This occurs by integrating technology by combining the use of computer hardware, software, educational theory and practice to facilitate learning with the objective of diversifying the learning environment for students. For example, having interactive screens in the classroom as well as online training sessions.



I hope now you are familiar with the concept of educational technology, let us now discuss why multimedia in adult education.

Characteristics of Multimedia

Multimedia has following important characteristics: -

- i) Multimedia systems must be controlled by a computer – storing, transmitting and presenting the information to the end users
- ii) Multimedia systems are linked to one another, i.e., integrated: The system's multimedia components such as video, music, text, and graphics must all be integrated in some way.
- iii) The data they work with must be represented digitally: The process of converting an analog signal to a digital signal.

Usually, the interface to the final media presentation is interactive.

Why Multimedia in Adult Education?

Dear learner, before looking at why multimedia in adult education, lets us understand the meaning of adult education. Adult education involves different kinds of people and agencies; it takes place in buildings and outside buildings. The concept is considered alongside with other diverse terms like literacy, community education, informal education, andragogy, recurrent education, non-formal education, continuing education and lifelong education. As Mushi (2010) describes, adult education is a means of learning whereby men and women seek to improve themselves or their community by increasing their knowledge and skills. This means that undertaking any type of learning activity to gain knowledge, skills and competence can be regarded as adult education. Additionally, Mushi defines adult education as any organised educational activity outside the established formal education system. These adult education programmes are designed to target and meet the needs of specific people such as workers, women, youth and the aged.

Dear learner, we use multimedia to enhance the quality of instruction during learning sessions and as teaching and learning materials. For example, radio programme, videos, newspapers, books, journals and pictures. It is significant to highlight that



multimedia enable learners to learn through technology with or with supervision from their facilitator.

Importance of Multimedia and Educational Technology in Adult Education Programmes

Dear learner, when you use multimedia application in learning sessions, you can achieve the following outcomes:

1. To enhance the quality of instruction during learning sessions, we use CD-ROM-based radio and video programmes as part of the teaching and learning materials.
2. The use of multimedia resources allows learners to learn through technology with or without supervision from their facilitators. Hence, encourages using technology to access education.
3. The use of graphics, text, and sound effects enriches learning content and makes it interactive. The correct use of images and sound inputs can attract a learner's attention and increase retention of information.
4. Through multimedia, learners are able to learn skills relevant to their daily activities, when they want and how they want it at their own pace. This is because of its interactivity, flexibility and the combination of other media that can support learning. hence, the use of multimedia technology to transmit information in learning has proved helpful and fruitful in education.
5. As Willingham (2009) states, visual media help learners to retain ideas and concepts more easily. This implies that by listening or watching video programmes, learners can easily recall the content, encouraging high retention of information among learners in the process.
6. Technology has eased the way complex ideas are presented within a short period of time, hence, playing an important role in popularising learning through technology.
7. Yowell and Rhoten (2009) note that using multimedia resources can promote active learning. This is because it provides a platform for the learner to interact with the learning



material. As a result, it encourages interest in knowledge of the material being taught and assists learners in achieving expected learning outcomes.

8. As Mariki (2016) observes, more learners can be reached through technology due to the possibility for wider coverage. Therefore, learners who would have been denied educational opportunities, can access classes, courses or training.
9. Hegarty (2006) argues that multimedia resources assist learners to learn at their own pace, anytime, anywhere and independently as it is easy to access teaching and learning materials. This tends to increase opportunities for learners.
10. Mariki (2016) adds that the materials are self-explanatory and require fewer facilitators, hence, it is considered as a cost-effective teaching method.
11. E-learning content help learners to recall Prior Learning before starting the learning, stimulate the adult learner's memory by relating a new information that has been learned before, recalls the concept, content and knowledge on what the adult learner has learned before. Presenting the stimulus information in the normal form can be delivered more effectively and stimulate adult learners by breaking information with important points. Furthermore, presents the contents through graphic, animation or sequence of the corresponding text.
12. Providing Learner Guidance. The adult learner needs to be facilitated the process of understanding by using learning guides. There are several ways to achieve this, for example by describing the process of semantics or phrases by using symbols, signs or formulas to facilitate learning. In addition, propose meaningful contents organization such as by using examples, analogy or graphic representation. Dear learner, multimedia especially computer has changed the way adult learner learn and facilitators present their lessons. There are a number of advantages in using multimedia and technology in learning, however in this module only present a few important once.

Advantages of Multimedia

1. Eased access to teaching and learning materials



2. Simplifies how ideas are presented using graphics, animation, audio or video.
3. Reach a large target audience as it breaks geographical location and time barrier
4. Allow learners to learn and work at their own pace, anytime and anywhere
5. Learners can access learning materials as often as required
6. Lower the cost of learning
7. Makes presentation live and engaging
8. Inspire creativity in developing thinking and problem-solving skills among learners
9. Provide feedback to learners
10. Can be re-used
11. It is user-friendly and very easy to understand. It doesn't take much energy out of the user, you can sit and watch the presentation, you can read the text and hear the audio.
12. It is multi sensorial. It uses a lot of the user's senses. for example, some students prot more from learning by reading, some by hearing and some by watching.
13. It is integrated and interactive. All the different mediums are integrated through the digitization process.
14. Interactivity is heightened by the possibility of easy feedback.
15. It is flexible. Being digital, this media can without much of a stretch be changed to t diverse circumstances and audiences.
16. It can be used for a wide variety of audiences, ranging from one person to a whole group.
17. Multimedia takes care of students with different learning abilities, as in the case of students having weak reading skill can use audio and visual learning tools for better understand.
18. Students working with multimedia will have the opportunity of seeing real things.
19. Students can adjust their own learning processes according to their abilities and preferences, without any hindrance of being dragged back or proceeding ahead as in fast or slow learner.
20. It takes into account individual differences among learners and



increase their motivation.

Although multimedia today is part of the air we breathe, it has some disadvantages as listed below.

Disadvantages of Multimedia

1. May not be accessible to a large audience due lack of access to internet or multimedia capable machines
2. Takes time to develop multimedia content
3. It is expensive to develop multimedia package
4. Require learners to have knowledge in computer skills
5. Require educators to be familiar with multimedia designing and production skills
6. Multimedia designer's high-end computer systems
7. Information overload. Because it is so easy to use, it can contain too much information at once and therefore distract attention during learning.
8. It takes time to compile. Although it is flexible, it takes time to put the original draft together.
9. It tends to be costly: Multimedia makes use of a wide range of resources, which cost a large amount of money
10. Problem of Compatibility: Some computers will not accept materials from other computers
11. Self-regulated learning: Some learners are not ready to deal with the opportunity given by hypertext-based multimedia
12. Low interactivity: Even though the interactivity between the learner and multimedia applications is increasing.
13. it is still considered restricted compared to the elaborated human-human interactivity. Henceforth, computers can't substitute for individual to-individual instruction, however just improve it.
14. Computer screens are not paper: The content on screens may not be as easy to read as the content on paper.
15. If there are large chunks of information. It is probably best to view such a document on paper. Books and journal, articles may still be better to read as print-outs.



Unit Assignment

Unit Reflection



The unit has discussed basic concepts related to multimedia and educational technology. You have learnt that multimedia is the combination of visual and audio representations whereby educational technology is the combined use of computer hardware, software, and educational theory and practice to facilitate learning. The unit has also presented the major types of multimedia as well as its importance in adult education. I hope you enjoyed the unit. Now before we proceed to another unit do the following assignment.

Unit Assignment

Attempt the following questions:

1. Define the following concepts:
 - a) Multimedia
 - b) Educational Technology
 - c) Adult Education
 - d) Multimedia Technology
2. Explain the advantage of using multimedia and technology in adult education programmes.
3. Identify the major types of media which can be combined to form the word multimedia.



Unit 2

Types of Multimedia Suitable for Adult Education Programmes

Dear learner, welcome to unit two of this module. In this unit you are going to learn about types of multimedia suitable for adult education programmes. The unit comprises of three sections namely the criteria for selecting appropriate instructional multimedia for adult education programmes, strength and weakness of each multimedia as well as challenges facing facilitators in using multimedia in teaching adult learners. It is my hope that you will enjoy the lesson. Welcome.

Learning Outcomes



Upon completion of this unit, you should be able to:

- Discuss the criteria for selecting appropriate instructional multimedia for adult education programmes;
- Explain strength and weakness of each multimedia; and
- Explain challenges facilitator face in using multimedia in teaching adult learners.

Criteria for Media Selection and Use of Instructional Media

Dear learner, in the previous unit, you have learnt the meaning of multimedia, its importance in Adult Education Programmes and Types. This section introduces your criteria or factors that guide facilitators in selecting appropriate instructional media for adult education programmes. We have to select a particular medium or a combination of media based on the needs and requirements of both the students and the courses being taught or learnt. It, therefore, becomes essential to select the most appropriate medium or a set of media to facilitate students to learn and achieve the course objectives effectively and efficiently. Some media are suitable to achieve certain objectives. For this to happen, several criteria need to be employed. These include:



Multimedia Principles

Dear learner, as an instructional designer understanding the multimedia principles will help you make better learning materials. It is important to observe that multimedia instructional message is a communication using words and pictures that is intended to promote learning. For example, a book could include printed text and illustrations, a video could include narration and animation.

Multimedia messages are designed in light of how the human mind works are more likely to lead to meaningful learning than those that are not. A cognitive theory of multimedia learning assumes that the human information processing system includes dual channels for visual/pictorial and auditory/verbal processing.

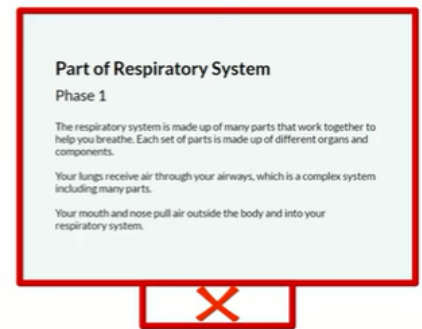
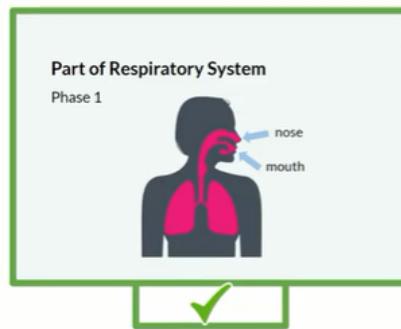
Principles of multimedia design

1. Mayer's principle
2. Contiguity principle
3. Modality principle
4. Redundancy principle
5. Coherence principle
6. Personalisation principle
7. Embodiment principle
8. Segmenting principle
9. Pretraining principle
10. Signaling principle

Mayer's principle

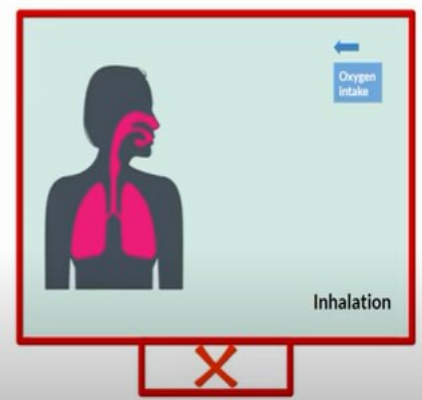
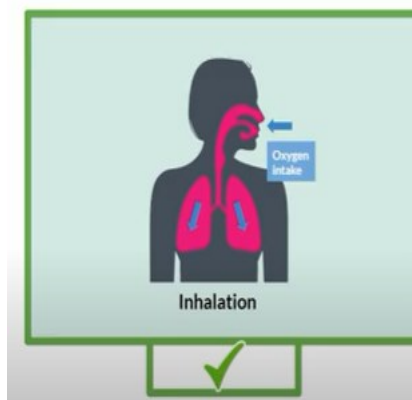
Dear learner, Mayer's principle emphasizes on the use of words and graphics instead of (words) just telling them. This provides learners an opportunity to construct verbal and pictorial mental models. As a result, build a connection between them. It is important to observe that when words alone are presented, learners have an opportunity to build a verbal mental model but are less likely to build a pictorial mental model. As a result, fail to make a connection between the verbal and pictorial mental model.

The Multimedia Principle



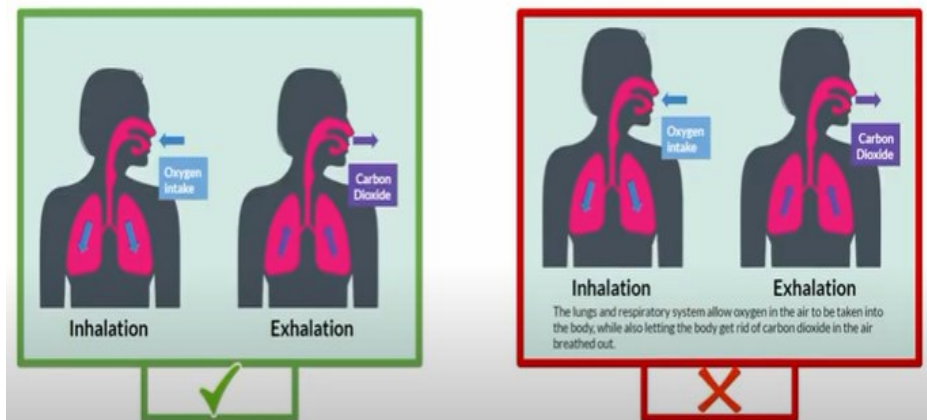
Contiguity principle

The use of words and graphics that help learners to understand and organise the explaining process. Align words to graphic that they describe. For instance, put a label close to whatever it is labeling (newspaper caption, instructional manual, feedback in social media)



Redundancy principle

Explain visual with narration or text, not both. Don't add text to the screen when narrating graphics.



Coherence principle

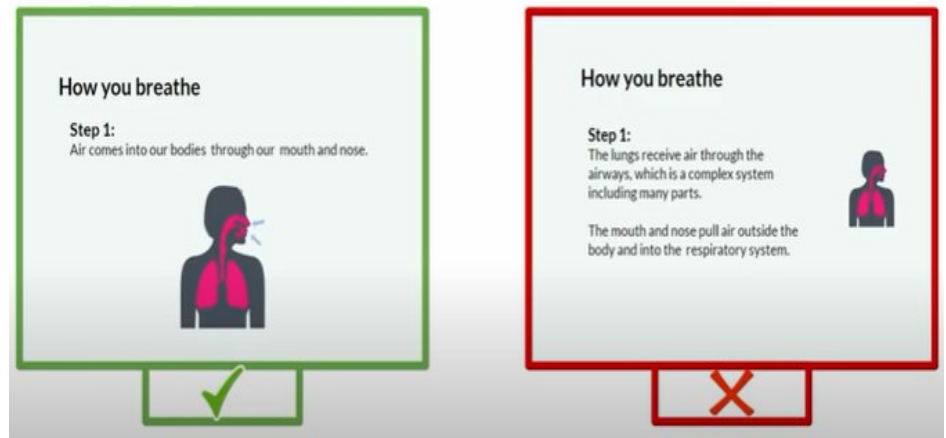
- Adding extraneous materials can hurt learning
- Avoid unnecessary information or distractive graphics.
- Keep everything aligned to the objectives.
- Less is more only the information the learner needs
- Have plan easy to read background



Personalisation principle

- The use of conversational style, human voice and polite wording.
- Emulate a human-to-human conversation.
- People learn better when it is at a conversational tone.
- Makes you feel connected to the content
- Consider the age of your learners

- Keep your language simple and casual
- Avoid using complex words (Overly professional).
- Use first and second pronouns e.g. you, I, we
- This helps you to connect with your learners

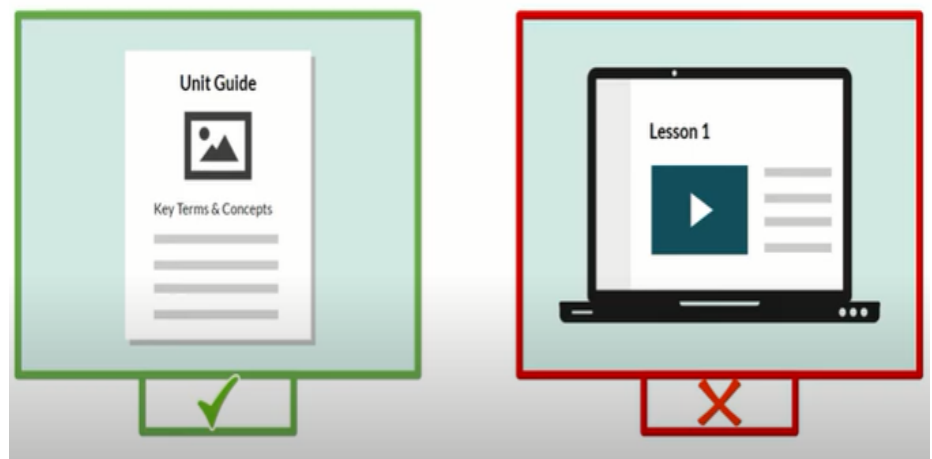


Embodiment principle

- Use on screen coaches or character.
- Can be photo realistic or illustration.

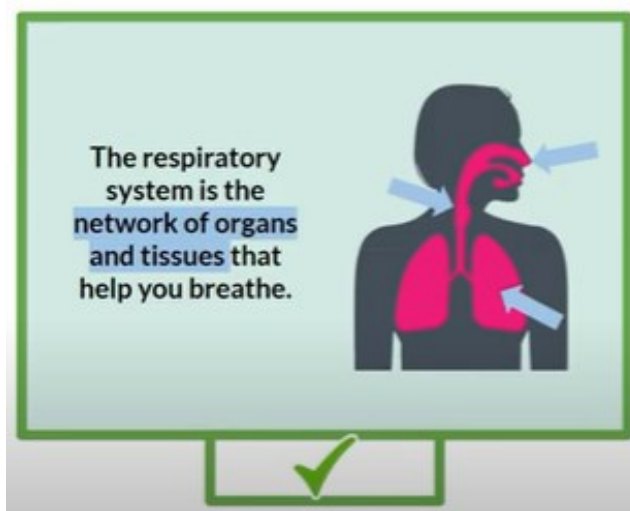
Pre-training principle

- Introduce key terms and concepts beforehand.
- Ensure learners know key terms and concepts.



Signaling principle

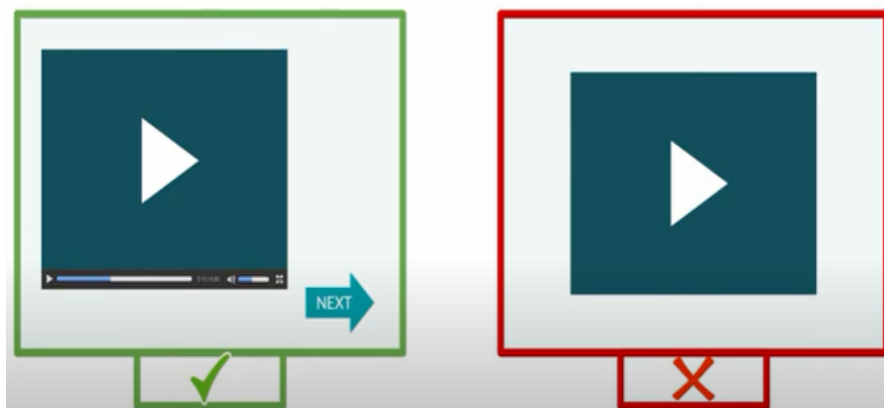
- Guide attention with visual cues. For example, highlight, zoom in and colour.
- Highlight the key content ...headings, voice, outlines, underline,
- This attracts attention of the learner.



Segmenting principle

Break lessons into bites- size segments rather than one long continuous section.

Allow learners to have control of the lesson...e.g. next button.



Modality principle

- We learn more deeply when words are spoken rather than read on screen.
- Learners focus on visual while listening to the voice (narration). Use graphics and narration not graphic and printed text.
- Learner uses the visual channel and auditory channels but graphics and printed text are printed through the visual channel thus graphics and printed text overload the quickly overload the visual channel.



Types of Multimedia

1. Linear Multimedia

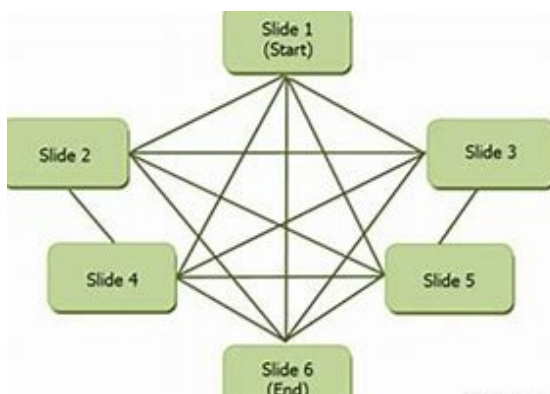
We can simply describe linear multimedia as non-interactive. In this type of application, the user has no or little control of the content. For example, the content may just allow the user to press enter to go to the next screen. In other words, navigation controls allows users to move forward or backwards. The content is presented in logical order i.e from the beginning to end. Some of the advantages of linear multimedia include allowing users to focus on specific topic and presenter controls the flow of information. However, it allows little or no interactivity and the user has no control on the content to dwell on. It is important to observe that multimedia does not have to be interactive. Some examples of linear multimedia application include PowerPoint presentations, maps, books, movies, television, radio, videos and newspapers.

- Linear presentation – Present information in a continuous manner.
- It allows the author to decides the sequence and manner in which information is presented
- Goes on a logical flow i.e. from start to the end.
- The creator of the multimedia is in control. The user controls only the pace.

- It is not interactive. However, in some case the performer or presenter is allowed to interact with the multimedia.
- The user has no control
- Advantage: Use for your needs
- Disadvantage: May be disorganized
- Examples: movies, slide shows, theoretical performance YouTube videos,

2. Non-Linear Multimedia

Dear learner, in non-linear multimedia application, the user has some control of what is presented and interacts with it. The navigation controls tool allows users to reach information in the first slide, second and so on.



This is due to a menu which connects between information. This allows the user to control the content and uses it as per their choice. However, it requires users to have a level of computer knowledge. Also, if not well used, it can be unorganized. Some examples of non-linear multimedia include video games, online quiz, interactive DVDs and CDs, websites, search engines, Youtube channels, online story books, online courses, podcasts, vodcasts and social media networks.

- Non- Linear multimedia – is a non sequential type, where the person's participation is important.
- Can be live or recorded
- The user interacts with the computer programme hence making



the user in control of the experience.

- Recorded presentation may allow interactivity through a negotiating systems.
- Examples: video games

Hypermedia

Dear learner, it is important mention that hypermedia is not limited to be text-based. It can include other media such as graphics, audio and video. Hypermedia is best defined as information linked and crossed referenced in many different ways and is widely available to the end user. On the other hand, hypertext is text which contains links to other text. They are organized in non-lineary way and consist of nodes and links.



There are two types of link, namely, internal and external link. World Wide Web (WWW) is a global hypermedia system on internet. It can be described as wide area hypermedia information and aims to give universal access to a large universe of documents. To use www the user needs a browser such as Internet explorer, Firefox. Browsers are used to display complex graphics, animation and sound.

Conclusion

When we speak about linear and non-linear multimedia, we refer to communication developed in a personalized or interactive manner.



It is directed to specific objectives of each situation. The user feels involved and user it as per their needs.

Dear learner, after knowing some of the advantage and disadvantage of multimedia. Now, let us discuss basic issues to consider when selecting multimedia application. It is essential to develop content that is not only beautiful but also highly engaging for learners to give them a good learning experience.

Media allocation

- How, and on what basis, is a particular medium selected for the presentation of a particular piece of information?
- Each medium has both constraining and enabling features (Arens et al., 1993),
- Affords different interactions,
- Offers different communicative intentions and has its own rules and conventions.
- Alty (1993) adds that the usefulness of different media in presentation situations is closely related to the complexity of the idea being conveyed.
- Nevertheless, he also states that the capabilities of the perceiver play an important role on the media allocation problem.
- There is an important difference between abstract and concrete concepts.
- Abstract and complex concepts are more easily and completely represented by words than by pictures.
- In contrast, more concrete concepts, if represented by pictures and sounds, can improve the speed of understanding and comprehension over that of text representation.
- The choice of medium also has to consider what information is intended to be conveyed and what is the intended effect of the information.
- The main problem is to establish which media best transmit the information needed by the users to carry out their tasks.
- Multiple factors play a role in the media allocation decision



(Arens et al., 1993):

- Characteristics of the media
- Characteristics of the information Goals
- Characteristics of the user Goals of the producer.

Features of application of multimedia

- As a multimedia designer, the need to use new technologies in educational process to present material in short period of time is unavoidable.
- In designing multimedia, it is necessary to take into account key selection criteria:
- Target audience
- It is necessary to have an idea of training materials content (video, sound, statistics) to determine if it is suitable for the target audience.

Determine whether level of materials complexity of target audience is adequate

- User-friendly interface
- Easy for users to explore, remember and present information.
- Flexibility and navigation
- How easy it is for users to get required knowledge, perform necessary tasks, using system of references presented in application.
- Reliability of information.
- Since any electronic product must be characterized, in most general representation, by content and navigation.
- Content is meaning of multimedia "product", formalized in main information blocks. information block is understood more broadly than set of data for memorization.
- It is not only about transmission of information in broadcast mode, but about development of skills and abilities (including research).

Factors to Choosing Multimedia

1. **Use different forms of media**, the forms can include CD-ROM, internet, e-books and traditional resources such as



books, newspapers, film, video, radio and television. This helps to meet different needs of learners. For example, user can benefit from audio elements such as recorded lectures, videos or interactive games.

2. **Use images that demonstrate and relevant to the content**, this engages learners and make multimedia more appealing. Avoid too many images because you don't want the content and information to be lost in the graphics, photos or clip art images.
3. **When dealing with technical topics**, use images photographs, diagrams or flow charts to offer an in depth look at the matter.
4. **To design interactive sessions**, use slide shows within your presentation by mixing different multimedia elements without overshadowing the content.
5. **In audio presentations**, include audio elements relevant such as background or audio-based scenarios to the content. Select quality audio and clear vocals. This helps to create a more interactive and engaging learning experience. However, avoid using audio all through your learning content.
6. **Consider learners' technical requirements and limitations**, for example, will learners be able to listen to the content or easily navigate through the content.

Multimedia Applications for Teaching and Learning

In this section, we look at different forms multimedia applications that can be used to facilitate teaching and learning. There are two basic approaches to deliver multimedia lessons, mainly, CD-based and Web-based multimedia.



CD based-multimedia



Web-based multimedia

CD-based include video, radio and television programs while web-based are blogs, discussion forums and internet. However, before choosing which application to use, you need to consider the following:

1. Type of application to be developed
2. Tools to use
3. Technical reasons for using the application
4. Level of interaction
5. Content
6. Target audience

Teaching Tips for Using Multimedia Application

When multimedia application such as CD, audio cassette or video in class, learners can develop their own learning methods as a catalyst for in-depth study of masterwork. Dear learner, below are steps to follow when using video in teaching.

Steps for Using Video in Teaching

1. Choice a specific clip to provide the content or illustrate a concept or principle
2. Create guidelines for learners' or discussion questions so they have directions on what to see, look and hear
3. Briefly introduce the video to emphasize the purpose
4. Play the clip
5. Stop the clip at any scene to highlight a point or replay clip for a specific in-class exercise
6. Set a time for reflection on what was scene

7. Assign an active learning activity to interact on specific questions, issues, or concepts in clip
8. Structure a discussion around those questions in small or large group format.

Videos

Dear learner, have you ever watched a movie, film or TV program? Do they make you laugh, relax, feel excited, love or even bored. These emotions are triggered by the mood created by visual scenes, actor or background music. Video has a strong effect on your mind and senses. It is powerful. There are different types of videos such as drama, documentary, TV programs, movies, film and comedy that can be used as an instructional tool.



The type of video to use will depend on the learning purpose, characteristics of learners and their interest. Video makes learners experience powerful reasoning and emotional impact. However, if not correctly used it can distract and decrease learning.

Documentary

Dear learner, documentary can be a film, television or radio program that gives information and facts. It depends of facts, written records, trustworthy sources and interviews. Documentaries deal a topic in its details. The subject can vary from educational, social, political or economic, problems. It is important to note that

sound create the mood of the real environment while music is minimized where real fact life voices get prime importance. The use of correct background sound effects and voices of real people can make documentary more attractive and enjoyable. Using a narrator mixed with voices of real people or actors and appropriate background effects and music bring a documentary to life.

Radio

Dear learner, radio is a powerful channel of communication. It reaches a wider audience quickly and allows the large audience to interact with one another more easily than television viewers or newspaper readers. Radio is cost-effective alternative to text for connecting with your learner and providing up-to-date content, interviews, discussions or lecture materials. Some of the radio programs include radio drama, talk show, documentary and magazine programs.



Radio Play/Drama

Dear learner, we can simply define radio drama as theatre of the mind. It presents word pictures. Through dialogue, instruments and background sound effects keep a harmony to make pictures in learner's mind. In radio drama, we use dramatic situations, language and imagery to attract learner's attention. Tone variations create impact. Each word and sound should provide exact pictures. We use audio script to draw the visuals. This enables learners to visualize everything by hearing the audio. Dear learner, drama must sound natural and speak true to character. It should have a time limit of 30-60 minutes. However, drama can either be single or serial consisting of several episodes.



Radio Talk Show

Radio talk show is most likely the oldest format on radio. In the radio talk show, you invite experts or prominent persons to speak for 10 or 15 minutes on a given topic. The talk show should be interesting and informative for learners.



Radio/Television Magazine Programs

Magazine program can either be a radio or television program. It can consist of different topics and is designed for specific learners. The title of magazine programs reflect the main theme of the program or taste of the target users. Emphasis goes on to content. Magazine program should be linked together by an anchor with interesting comments, announcements and narration. Magazines appear regularly in a regular time. They normally have a time duration of half an hour.

Magazine

Magazine is another major way to communicate with learners. The title of a magazine appeal to specific target audience. It has a long life span and can be used as a reference material. Also, learners may pass magazines on to their friends and family. This increase the number of readers who are exposed to your content. Periodicity of a magazine is important. However, magazines are expensive to produce.



The Internet

Computer technology has internet, the internet is an essential tool in education. Internet gives us access to worldwide information and research. It can be used for teaching and learning, electronic publication and business. In dealing with education, internet present users with a wide range of collection such as discussion forums, blogs, webcasting, audio and video conference, chatting and instant messaging. All these allow learners to easily connect for discussions and exchange information. For example, it facilitate group project work and collaborative activity.



Internet connection

Social Media Networks

Social media includes various applications such as blogging and social networking (Facebook, Twitter, YouTube, WhatsApp, Instagram and Pinterest). In education, it is powerful and allows a large number of learners to easily connect and access learning materials. Social media combines different forms of electronic communication. These include websites for social networking and microblogging through which users develop online content to share information, ideas, personal messages and videos.



There are four main reasons for using social media in education:

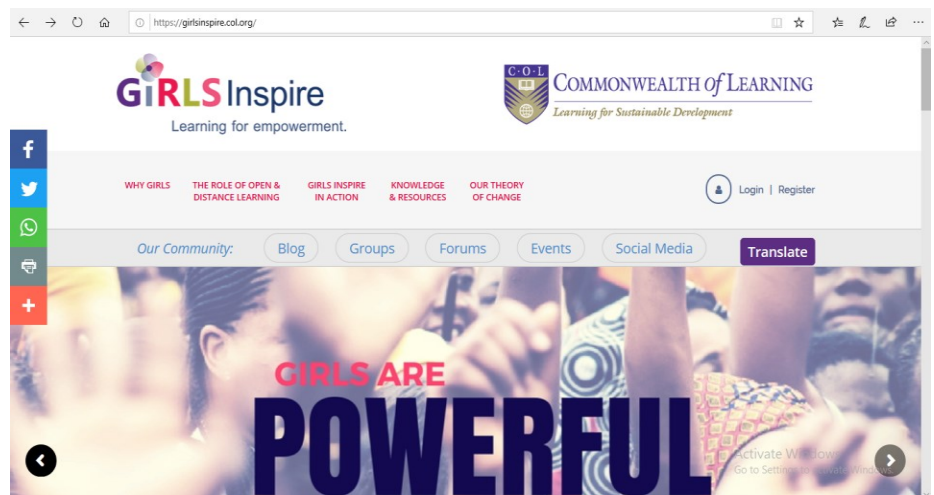
1. It is flexible as it allows learners to study what they want and whenever they want.
2. Encourages collaboration by allowing learners to work together
3. Enable learners to find and share information
4. Through connectivity it makes learning real for learners

Dear learner, we can use social media for:

- a) Group chats (Facebook messenger or WhatsApp) to post assignments, remind learners of deadlines, ask questions for both facilitators and learners and it is a good place for debate.
- b) Sending tweets facilitators can create hashtag and use it to push content to learner as well as connect to other facilitators through twitter.
- c) Keeping and ordering educational materials
- d) Learners can use it to submit their work
- e) Allow learners to showcase their work such in a different format such as sharing photos through Instagram.
- f) Facilitators can record, posting videos or live stream lessons for learners through Facebook and YouTube.

Blog

A blog is an online informational website. It allows a learner to share, access and easily update information. It permits users to easily post content onto a website on a regular basis. It gives a voice to the blogger or group and allows comments from those who comment.



Chat and Instant Messaging

A popular application on the web. It allows two or more users to exchange text-based messages in real time. A group of users can start a text conversation online in a space popularly known as chat

room. Everybody sees all the messages although some chats allow private messaging between session members.



Discussion Forum

Discussion forum is sometimes referred to as message board. It is majorly a tool for online discussion. Learners or users participate by posting messages. Also, they can communicate at different times by writing comments that remain in the forum for other users, who can read and respond to them. The platform can have one or more discussions, which are comprised of one or more post and replies.

Audio and Video Conferences

Audio and video conferences are audio and videos sessions between two or more users at different locations in real time. Recorded audio conferences can be made available as podcast while video conferences give face-to-face experience as well as human presence.





Benefits of Using Multimedia Application

When you use multimedia application in learning sessions, you can achieve the following outcomes:

- i) Create interest in class
- ii) Attract students' attention
- iii) Increase understanding
- iv) Increase memory of content
- v) Increase learners' imagination
- vi) Create memorable visual images
- vii) Build a connection with other learners
- viii) Improve attitudes toward content and learning
- ix) Inspire and motivate learners
- x) Make learning fun

Challenges Facilitators Face in Using Multimedia

Dear learner, now that you understand different forms of multimedia. Let us look at the challenges which facilitators face when using multimedia. In these modern times, technology is a major factor in shaping education sector. The sector is experiencing an increase in the use technology. Although facilitators appreciate the use of technology in education, they often find smooth and effective integration of new educational technologies challenging. The following are some key challenges that facilitators face in using multimedia applications.

- a) Attitude and beliefs
- b) Resistance towards technology
- c) Knowledge and skills
- d) Access to technology
- e) Inadequate training

Attitude and beliefs, it is essential that a user feel comfortable and confident about their ability to use multimedia application. Users with little or no multimedia technological experience knowledge can feel intimidated. This can lead a user or learner to feel less in control of the session and use less multimedia. Also, the user may unlikely explore new possibilities to use technology in their



session. With good technical support and access help users to overcome this barrier to smooth session delivery.

Resistance towards technology, implementing new technologies into lesson plan can be a challenging task. Dear learner, if the current lesson plan meet learner's needs there is little motivation to change them. Facilitators spend many hours writing lesson plans that will attract attention and make learning interesting. Therefore, revising lesson plans means additional work to the facilitator, which is problematic given an already demanding schedule. Additionally, revising lesson plan to include multimedia applications is more labour intensive. To overcome this challenge, facilitators should have the ability to select a multimedia application they feel most comfortable with.

Access to technology, instructors having limited access to multimedia application because most of the technology is expensive.

Knowledge and skills, many instructors have little or no knowledge on computer and are not keen adopt technological changes.

Inadequate training, there is no enough training opportunities as well as inappropriate training for facilitators in using multimedia applications in session's environment. However, the issue of training is complex because it is important to consider various factors to ensure training effectiveness. These include time for training, educational (academic) training, skills training and multimedia using in facilitation training. Whatever, training opportunities that are offered to facilitators much be adequate for them to understand the concepts behind teaching with technology.

Conclusion

The multimedia tools enable the user to access teaching and learning material. These are in forms such as video, radio, magazine and internet. However, users face difficulties that they need to understand when choosing a form of multimedia.



Development of Multimedia

Dear learner, in production of multimedia programmes, we need hardware and software editing tools. Next, we collect data for five basic elements of media, which are text, graphic, audio, video and animation. Example of hardware tool are microphone, computer, scanner, video camera, sound cards, audio and video devices. To edit elements, we need text animation, graphic, audio and video editors. Examples of editing software tool include Notepad, Microsoft word, Adobe Photoshop, Adobe Audition, Adobe Premiere, and Macromedia flash (2D).

Criteria for Multimedia Tools

Dear learner, the following are factors should be considered when selecting multimedia tools:

- a) Should be easy to use
- b) Have ready-made templates
- c) Compatible with world wide web
- d) Have online help and learning aids.

Users Interface Principles

Interface is a program that provides a medium for a learner to interact with the system. Dear learner, below are the eight major principles of the user interface.

1. **Consistency**, the same words or command should perform the same functions throughout interface.
2. **Clarity**, icon, words or commands should be clearly labeled.
3. **Context**, every section of the content should be relevant to a specific topic.
4. **Navigation**, learners can move around easily.
5. **Search**, learner should be able to look for information.
6. **Personalized**, learners should be able to create their own individual learning
7. **Learnability**, the application should offer support information and help file to make it easy to understand.
8. **Flexibility**, learners should be able to move through without any limitations.



Production Process of Multimedia

Dear learner, there are three stages in producing multimedia content, pre-production, in-production and post-production. The pre-production involves preparation such as conducting research about the topic, prepare equipment, orient actors and script writing while in-production involves recording and editing and post-production is testing and refining, when necessary, in the production.

Content Design

Dear learner, content design deals with what to say and how to delivery it. Some ways of delivering your content includes write, illustrate, animate, hear and interact with it.

Script Writing

The script guides the production of the content. When writing a script, the writer should consider the following:

1. You need to understand your audience. For example, their age, prior knowledge, interest, skills, abilities and experience.
2. Keep the writing simple as possible
3. Make sure technology used complement each other

Graphic/ Image

Dear learner, rather than used words alone, it is advisable to use pictures to effectively deliver your message. If possible, create your own.

Text

Text should be used for titles, headlines, menus, navigation and content. Textual communication is influenced by typeface, font, special effects and characters. Multimedia designers should avoid overcrowding of text on a single page.



Audio

It is accessible in different file formats such as wav, analog and digital. The correct format is chosen to maximize its performance. Sound recorded on an audio tape through a microphone or from other sources is in an analog (continuous) form. The analog format must be converted to a digital format for storage in a computer.

Evaluating Multimedia Materials

We evaluate multimedia application to assess whether it meets objectives set and recommend improvements it requires to make it useful to learners. It is important to note that evaluation is not a uniform process and cannot be the same for all programmes. Evaluation involves testing of the content it transmits to learners. Although it can be done at the level of the contents and technology. Technology plays the role of only transmitting content. Also, no single multimedia application is appropriate and perfect for all learners. Dear learner, there are two types of evaluation, formative and summative.

Formative evaluation

- It is a continuous process in development of multimedia.
- Answers the question who, where and how.
- Questions who are the target learners and learning objectives
- Inquires how will the programme be used will influence the choice of technology.

Summative evaluation

- It targets the learner. Summative evaluation is
- It is done after completion of the development of multimedia application
- It focuses on teaching and learning objectives identified during the needs assessment.
- It can be short- or long-term changes in the programme.

Conclusion

This unit describes development and evaluation of multimedia, highlighting steps of multimedia production, content creation and



script writing. It explains the importance of understanding your users before choosing a multimedia application, understanding your users and whether its content meets the needs of its users.

Exercise

1. Explain three major steps in development of multimedia.
2. Mention two types of multimedia evaluation and give a brief description of each.

1. Availability and Accessibility

The media selected must be available locally, that is, within the country concerned, and there should be adequately trained human power to manage and use the media available and accessible. At the same time, the target group must be able to have easy access to it.

By availability, we mean that the technology exists within the reach of the target group. For example, in some parts of our country radio and TV signals are not available; telephone line is not available.

2. Cost-effective

Financial constraints are a concern of every country, rich or poor. Financial criteria need to be kept in mind while selecting a medium for distance education and training. If the same objectives(s) can be achieved by using a simpler and cheaper medium the choice would naturally be for such a medium only.

3. User Friendliness

The media selected should be user friendly, both for the teachers and the students. The media should be easy to operate, use and manage. If the media is too complex to operate and manage, the possibility of its utilization becomes less. Some media are very demanding in terms of skills to produce and use learning materials.

4. Trained Human Power

There is no substitute for professionalism. Every medium demands certain competency on the part of the users, may be teachers or the



students. You might agree that the developing countries including India borrow many a technology from the developed countries. So, one criterion of media selection is that adequately trained personnel should be available to produce and utilize educational media.

5. Hardware

Needless to say, that the technology selected should be safe and durable. It should suit the geographical and climatic conditions of the area/place. Care should be taken that the technology selected is compatible with these conditions. Otherwise, the technology and equipment will become redundant or obsolete. For example, to operate a TV set you need electricity at both the ends.

Strength and Weakness of Each Multimedia as a Teaching Medium

Dear learner, it is better to note that, some media are simple while others are complex to design, produce and use for educational purposes. No medium is perfect to achieve all types of objectives; no medium is inferior or superior to others. Each medium has certain obvious strengths and limitations.

1. Text

Print has been dominant teaching technology, arguably at least as influential as the spoken word of the teacher. Even today, textbooks, mainly in printed format, but increasingly also in digital format, still play a major role in formal education, training, and distance education. Many fully online courses still make extensive use of text-based learning management systems and online asynchronous discussion forums.

Strength of Text as a teaching medium

- Text's linear structure enables the development of a coherent, sequential argument or discussion.
- At the same time text can relate evidence to argument and vice versa.
- Text's recorded and permanent nature enables independent analysis and critique of its content.

Weaknesses of text as a teaching medium



- They require suitable reading ability e.g. people with visual impairment
- Reading just use an image and not real action.

2. Audio

Although there have been continuous developments of audio technology, from audio-cassettes to Sony Walkman's to podcasts, the pedagogical characteristics of audio have remained remarkably constant over a fairly long period.

Strengths of Audio as a Teaching Medium

- They are easy to prepare with regular or normal tape recorder.
Eg: It is much easier to make an audio clip or podcast than a video clip or a simulation.
- Audio requires far less bandwidth than video or simulations hence downloads quicker and can be used over relatively low bandwidths.
- It is easily combined with other media such as text, mathematical symbols, and graphics, allowing more than one sense to be used and allowing for 'integration'.
- Some students prefer to learn by listening compared with reading.
- audio combined with text can help develop literacy skills or support students with low levels of literacy.
- Audio provides the variety and another perspective from the text, a 'break' in learning that refreshes the learner and maintains interest.
- Audio increased distance students' feelings of personal 'closeness' with the instructor compared with video or text, i.e. it is a more intimate medium.

Disadvantages of audio as a teaching medium

- Audio-based learning is difficult for people with a hearing disability.
- Creating audio is extra work for an instructor.



- Audio is often best used in conjunction with other media such as text or graphics thus adding complexity to the design of teaching.
- Recording audio requires at least a minimal level of technical proficiency.
- Spoken language tends to be less precise than text.

3. Video

Video is a much richer medium than either text or audio, as in addition to its ability to offer text and sound, it can also offer dynamic or moving pictures. Thus, while it can offer all the affordances of audio, and some of the text, it also has unique pedagogical characteristics of its own.

Strengths and Weaknesses of Video as a Teaching Medium

- Linking concrete events and phenomena to abstract principles and vice versa.
- The ability of students to stop and start, so they can integrate activities with video.
- Providing an alternative approach to the presentation of content that can help students having difficulties in learning abstract concepts.
- Adding substantial interest to a course by linking it to real-world issues.
- A growing amount of freely available, high-quality academic videos.
- Good for developing some of the higher-level intellectual skills and some of the more practical skills needed in a digital age.
- The use of low-cost cameras and free editing software enables some forms of video to be cheaply produced.
- Adding substantial interest to a course by linking it to real-world issues.
- A growing amount of freely available, high-quality academic videos.
- Good for developing some of the higher-level intellectual skills and some of the more practical skills needed in a digital age



- The use of low-cost cameras and free editing software enables some forms of video to be cheaply produced.

The main weaknesses of video are:

- Many faculty have no knowledge or experience in using video other than for recording lecturing.
- There is currently a limited amount of high-quality educational video free for downloading, because the cost of developing high-quality educational video that exploits the unique characteristics of the medium are still relatively high. Links also often go dead after a while, affecting the reliability of outsourced video.
- The availability of free material for educational use is improving all the time, but currently finding appropriate and free videos that meet the specific needs of a teacher or instructor can be time-consuming or such material may just not be available or reliable.
- Creating original material that exploits the unique characteristics of the video is time-consuming, and still relatively expensive, because it usually needs professional video production.
- To get the most out of educational video, students need specially designed activities that often will have to sit outside the video itself.

Challenges facing facilitators in using multimedia in teaching adult learners

- i) The first problem of using multimedia technology as pointed by Deutscher is the technical problem. Sometimes it so happens that multimedia starts to malfunction because of technical problems. In such case, teachers become frustrated. Most of the teachers are not updated to multimedia technology.
- ii) Lack of enough technology facilities like computers to provide to both teachers and students. This sometimes the teachers lose their motivation to use multimedia in the class.
- iii) Lack of infrastructure related to the establishment of multimedia classroom.

- iv) More time is required to make multimedia learning materials and the teachers are not eager which may raise the probability of inattentiveness from the learners. For example: the multimedia content teachers use is not appropriate and high. Sometimes, teachers use very colorful images, videos etc. This hampers the concentration of the students.
- v) Another challenge is the way of spreading multimedia for initiating learning. They found, “the challenges include electrical resources, networking, application software systems, human resources, hardware system, and risk management.” Actually, creating the multimedia environment is the first challenge to spread multimedia learning. That is to say, a multimedia-enabled class is priority in the process of imparting learning to the vested quarters.

Dear learner, there are many challenges; these ones are some of them. I hope you can mention many more.

Unit Reflection



Dear learner, we have now completed the unit. In this unit, you learnt about the criteria for selecting appropriate instructional multimedia for adult education programmes, strength and weakness of each multimedia as well as challenges facing facilitators in using multimedia in teaching adult learners. I hope you enjoyed the lesson, please be prepared for the next unit.

Unit Assignment



Attempt the following questions:

1. What makes text such a powerful teaching medium, and will it remain so, given the latest developments in information technology?
2. Reflect on your experience as an adult education educator. What challenges do you face in choosing and using appropriate multimedia for adult learner?
3. Compare and contrast between video and audio as teaching medium?



Unit 3

Apply Multimedia in Adult Education Programmes

Introduction

Dear learner, welcome to unit three in which you are going to plan, Create and use your Multimedia Resource in adult education programmes. The unit comprises of three sections namely; conducting situational analysis, designing multimedia suitable for teaching adult learner as well as using multimedia in teaching adult learners. It is my hope that you will enjoy the lesson. Welcome.

Learning Outcomes



Dear learner, after completion of this unit you should be able to:

- Conducting situational analysis;
- Design multimedia suitable for teaching adult learners; and
- Use multimedia in teaching adult learners.

Design Multimedia Suitable for Teaching Adult Learners

Dear learners, this section introduce you to the term multimedia presentation. It also identifies the steps for creating a multimedia presentation citing good examples of multimedia presentations. Once again you are welcome.

Planning for multimedia presentation

Dear learners, teachers can use a variety of multimedia and technology tools in their classrooms to appeal to each and every learning style. Texting, video instruction, online games, and podcasts are just some examples of the wonderful and influential technology available to educators. The advent of technology and multimedia has also made education more portable and accessible in or out of the classroom.



Teachers should ask themselves a few questions when integrating video technology and multimedia in the classroom. What is the end goal or result they want? What information will they want students to learn from this lesson? How advanced are their students now in regards to technology integration? How will this aid in knowledge retention for the students? Once a teacher answers these questions, they are well on their way to smoothly integrating multimedia into their classroom and adjusting to the modern learner.

Teaching with video technology and multimedia not only helps the student and teacher, but it has become an essential and integral part of the learning process for the modern learner.

Tips for Planning and Creating Your Multimedia Resource

Technology planning is a complex process that requires collaboration and cooperation across a broad range of technology issues and stakeholders. An effective education technology plan must consider and articulate the following dimensions:

- **Goals.** Articulating goals is an important element of strategic planning. What does your organization need to accomplish?
- **Standards.** What professional organizations have created standards relevant to your planning goals? There are probably multiple sets of standards you need to consider. There may be curriculum standards, leadership standards, discipline standards, and technology standards. What are the relevant standards and how should they guide your planning?
- **Learning Theory.** Especially when planning for the use of education technology, it is important to understand the principles of *How People Learn*. Study this book by the National Research Council and use its principles to guide your creation of an effective learning environment.
- **Systemic Improvement.** What is your plan for collecting data regarding the progress students are making toward attaining educational goals? How will this data be collected and how will it be used to guide the continuous improvement of the teaching and learning environment?
- **Professional Practice.** What do teachers, faculty, and administrators need to know in order for your plan to succeed? How can you empower them to deepen their professional



knowledge and skills? What professional standards guide what your organization's personnel need to know?

- **Accessibility.** A core value guiding American education is the belief that every person can learn and has the right of doing so. How will your organization provide equal access for every learner? What Web accessibility standards will guide your selection of online tools and services? What are the needs for differentiating instruction and what strategies do you plan for doing so?
- **Tools.** What are the tools that will power your plan? How do the principles of How People Learn inform your tool selection? What data do these tools collect and where does this data reside? Is this data collection adequate for the cycle of systemic improvement specified above?
- **Obstacles.** What can make your plan fail? How can you anticipate these obstacles and plan for overcoming them? What risks are you taking and what are their potential consequences?
- **Leadership.** Who will create the shared vision required for this plan to succeed? How will this vision be communicated and embraced throughout the organization? Are current staffing levels adequate? What reorganization is needed, and what additional personnel need to be hired? How will you recruit and retain the staffing needed to oversee the technological elements of this plan?
- **Timeline.** How long will it take for this plan to take effect? What are the milestones and when will they occur? Are the milestones in the correct procedural order, i.e., do any milestones require things to have been done that are too far ahead on the timeline?
- **Costs.** Provide a budget showing what the plan will cost. Accompanying this budget, provide an explanation of each line item. Identify costs that the organization already has covered versus items requiring additional resources. How will the organization fund these added costs? Are there ways to reduce these costs? Could open-source solutions or open education resources reduce planned expenditures?
- **Trends.** We live in a fast-paced world. Especially when it



comes to technology, it may seem that the only constant is change. What national or international trends are occurring within the domain of this plan? How will emerging technologies impact this plan?

How to Create a Multimedia Presentation

Dear learner, nobody is impressed by a series of boring slides filled with text anymore. Modern audiences demand beautiful slide decks with plenty of engaging visualizations and interaction to keep them interested.

What is a multimedia presentation?

We hear the term all the time, but exactly what is a multimedia presentation? Just as its name implies, a multimedia presentation is a visual presentation that provides information through not only slides, but also audio, video, infographics, animation and other forms of communication. All of these tools combine to create greater audience engagement, while holding viewers' focus and enhancing their retention.

What can be included in a multimedia presentation?

Most multimedia presentations feature slides with text and a combination of any of the following elements:

- Photos
- Video
- Music and other audio effects
- Infographics
- Animation
- GIFs
- Surveys
- Screenshots
- Icons, logos and other graphics.

How to create a multimedia presentation

Dear learner, it is simple to create a multimedia presentation if you have the right software tools at your disposal, just follow the following steps:



1. **Select and outline your content** – What is the purpose of your presentation? What is your subject? Answer these questions and choose content that will support your presentation objectives. Create an outline of the content as it will appear on your slides.
2. **Consider multimedia options** – Examine your content outline and decide what multimedia elements will best showcase your information. Will a concept clearly be communicated with a video, or will a photograph be a better fit? Should you add music to a certain section, and what multimedia options will boost learner’s engagement at key moments?
3. **Design your slide deck**– You can design your slide deck from scratch or customize presentation templates from PowerPoint-alternative software options like Beautiful.ai. Construct your slide deck so that each section of your outline is represented by its own slide. Add titles and headings to designate each slide’s function.
4. **Insert your content**– Add your textual content to the appropriate slides. Be sure the text is in a clear and legible font, and try to avoid crowding too much content on any individual slide.
5. **Add images, video and audio elements**– Using your presentation software of choice, insert video, audio and graphic elements in the appropriate slides. If you use Beautiful.ai, artificial intelligence will automatically adjust the design of your slides each time you add new content, ensuring your presentation adheres to the principles of good design.
6. **Add animations and transitions** – Once you’ve designed your slide deck and inserted multimedia elements, you can add extra pizzazz to your presentation with the addition of transition and animations. The subtle motions will polish your presentation with increased visual appeal, and it will boost audience engagement by capturing and retaining viewers’ attention.
7. **Review your presentation and share it**– Carefully review your presentation to ensure it’s ready for your learners, rehearse your delivery and share your information with the world!

Note: Dear learner, while you can create basic multimedia presentations with Microsoft PowerPoint, there are much more

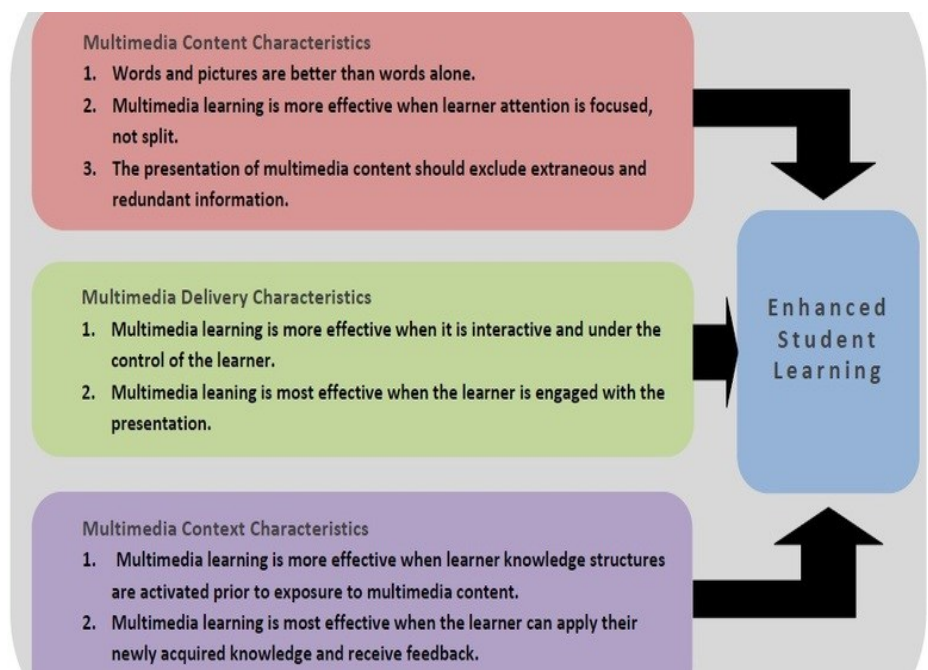
innovative and modern tools out there to help you create even better presentations, like **Visme** and others.

Use Multimedia in Teaching Adult Learners

Dear learner, using multimedia in the adult learning cycles helps the facilitator engage the learners and helps the learners be more involved and retain more information from the lesson. Learners today are constantly bombarded with technology and are accustomed to receiving knowledge and information immediately in our fast-paced society.

Millions of adult learners are using multimedia technology to access different information around the world. As an adult facilitator, you must be prepared to facilitate and ignite these learners in a way that they know how to learn. In this section you will learn effective ways of using multimedia in teaching adult learner as well as what to be considered. Start by studying the following framework.

Effective use of multimedia



Words and pictures are better than words alone.



The fundamental principle behind multimedia learning is best described by Richard Mayer (2005), one of the leading researchers in this area: "People learn better from words and pictures than from words alone." In this context, words include written and spoken text, and pictures include static graphic images, animation and video. That using both words and pictures is more effective than words alone should not be surprising in light of what we know about how the brain processes information. Research tells us that the use of both words and pictures lets the brain process more information in working memory (Sweller, 2005).

Multimedia learning is more effective when learner attention is focused, not split

Multimedia applications are more effective when learner attention is not split. Split attention occurs when the learner is forced to attend to information that is far apart, such as when content is visually far apart on the screen or if it is presented at two separate points in time. In short, when related content is presented together in time and visually, learning is more effective (Mayer, 2005). When related content is not presented together, learner attention is split and the brain has more work to do to integrate the disparate sources of information.

The presentation of multimedia content should exclude extraneous and redundant information

Research suggests that multimedia learning is most effective when it includes only content that is relevant and aligned to the instructional objectives (Mayer, 2003). Kalyuga, Chandler and Sweller (1999) found that students learned more when extraneous and redundant information was not included in a multimedia presentation.

Multimedia learning is more effective when it is interactive and under the control of the learner

Not all students learn at the same pace. Research tells us that when learners are able to control the pace of the presentation, they learn



more (Mayer, Dow, and Mayer, 2003).

Multimedia learning is more effective when learner knowledge structures are activated prior to exposure to multimedia content

Learning from multimedia presentations is enhanced when the structures for organizing the information are activated (Pollock, Chandler, and Sweller, 2002). Helping students recall or acquire structures that will help them organize and understand the information can be accomplished in several ways.

Multimedia instruction that includes animation can improve learning

When used effectively, animated content can improve learning. Several studies have suggested that learning is enhanced in computer-based animation environments (Park, 1994; Tversky, Bauer-Morrison and Betrancourt, 2002). Animation appears to be most effective when presenting concepts or information that students may have difficulty envisioning (Betrancourt, 2005). Animation can help the student visualize a process or other dynamic phenomenon that cannot be envisioned easily. This is especially true for processes that are not inherently visual (e.g., electrical circuits, forces in physics).

Multimedia learning is most effective when the learner is engaged with the presentation

Multimedia is most effective when the content and format actively engage the learner. Active engagement helps the student construct knowledge and organize information into meaningful schema (Mayer 2003). Research tells us that there are several ways in which we can make multimedia presentations more engaging.

Multimedia learning is most effective when the learner can apply their newly acquired knowledge and receive feedback

Multimedia is most likely to be effective when students are provided with opportunities to apply what they have learned following exposure (Mayer, 2005). This reinforces and strengthens the newly acquired knowledge. Students should be provided with



opportunities to integrate what they have learned with their everyday life. Other strategies that help students integrate what they have learned include follow-up learning activities, class discussions and group activities.

The considerations of multimedia teaching

1. Teachers should fully play the leading role: Teachers should identify their leading role in teaching, focusing on the following points:

- a) The multimedia course must meet the physical and mental characteristics and real life of students, from the point of view of fully mobilize the attention and ability of understand of students, designed of time and order of various media in teaching process;
- b) In order to avoid ahead of a recession of the attention of students, teachers should ensure that the multimedia classroom teaching amount of information is appropriate on each section;
- c) Note the use of teachers' body language. Body language includes temperament, gestures, voice and facial expression, vivid emotion. Beautiful body language allows students to better communication with teachers on emotion. Only use of various teaching methods correctly and teacher's body language, it can improve the teaching effect well.

2. Interaction and communication with students. Teaching activities in classroom is most important and most frequently part of interaction about teachers and students. The classroom behavior of teacher plays a subtle role to students. Teachers should be good at empathy. And become a good partner in student learning. In the multimedia teaching, teachers should pay close attention to facial expressions of students at class and firmly grasp the attention of students in time by teachers ask questions, call in questions and tell stories (and lectures related), or ask questions to students, debate, etc. Teachers should guide students to think and answer questions, and lectures be adjusted accordingly at any time.



3. **Combined with the traditional blackboard.** Although use of multimedia technology saves a lot of time of teachers to writing on the blackboard in the teaching classroom, in order to get better teaching effect than simply writing on the blackboard, teachers should spend more time for do a lesson panning before the full lesson. Not only spend a lot time for make multimedia courseware well, but also prepared carefully from the content, time, form and so on. According to different teaching content choice of different forms of teaching, to illustrate the problem form more maps, tables, or animations, through the multimedia courseware to support teaching and enhance intuitive, vivid of classroom teaching. Do that, student facilitate understanding. If some of content is the conceptual and reasoning, teachers must be brilliant, vivid explanations, and base on reflect of students in classroom, to provide examples of appropriate and writing on the blackboard to be interpreted for achieve good results. Otherwise, only keep the multimedia courseware "Play" according with order, the teacher simply read the content on the slide, without any writing on the blackboard and explain, this class is a "slide show lesson". Teachers completely ignoring the experience and acceptance, understanding of students in the classroom, it is difficult to achieve the desired effect.

4. **The showing mode and speed.** After implementation of multimedia teaching, some students think that there are some teachers teach content too much and progress too fast each lesson, causing students to dazzle, have no time to be granted a thorough understanding of the content, analysis, integration and then stored, resulting in greatly reduced learning the effect. The mainly reason of these problems is when the use of multimedia teaching, the teacher did not explain the courseware combine with the teacher's presentation. During the design of courseware presentation and show, the showing speed of each slide and the speed of the interface between the various components should manner with the teacher's explanation. Asking questions, inspiration and comment should be combined rationally, and teacher should leave the time for students to think. It can facilitate the teaching effectiveness, and students can communicate with teachers about the effect of teaching.

Unit Reflection



Dear learner, we have now completed the unit. In this unit, you learnt about the planning and creating a multimedia presentation for adult learning sessions as well as using multimedia technology in facilitating adult learning cycles. I hope you enjoyed the lesson.

Unit Assignment



Answer the following questions:

1. Define the term multimedia presentation.
2. Create your own video presentation with narration
3. Create an animated chart of your own
4. Mention different multimedia teaching methods suitable for adult learning cycle?



References