Competency-Based Learning Materials

Utilizing Electronic Media in Facilitating Training

Technical Education and Skills Development Authority
National TVET Trainers Academy
Marikina City

Competency-Based Learning Materials

Utilizing Electronic Media in Facilitating Training

ACKNOWLEDGEMENT

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How to use this Competency-Based Learning

Welcome!

The unit of competency, "*Utilize Electronic Media in Facilitating Training*", is one of the competencies of TRAINERS METHODOLOGY Level I (TM1), a course which comprises the knowledge, skills and attitudes required for a TVET trainer to possess.

The module, *Utilizing Electronic Media in Facilitating Training*, contains training materials and activities related to identifying learner's requirements, preparing session plan, preparing basic instructional materials and organizing learning and teaching activities for you to complete.

In this module, you are required to go through a series of learning activities in order to complete each learning outcome. In each learning outcome are *Information Sheets, Self-Checks, Task Sheets and Job Sheets*. Follow and perform the activities on your own. If you have questions, do not hesitate to ask for assistance from your facilitator.

Remember to:

- Read information sheets and complete the self-checks. Suggested references are included to supplement the materials provided in this module.

- Perform the Task Sheets and Job Sheets until you are confident that your outputs conform to the Performance Criteria Checklist that follows the sheets.

- Submit outputs of the Task Sheets and Job Sheets to your facilitator for evaluation and recording in the **Accomplishment Chart.** Outputs shall serve as your portfolio during the Institutional Competency Evaluation. When you feel confident that you have had sufficient practice, ask your trainer to evaluate you. The results of your assessment will be recorded in your **Progress Chart and Accomplishment Chart**.

You must pass the Institutional Competency Evaluation for this competency before moving to another competency. A **Certificate of Achievement** will be awarded to you after passing the evaluation.

You need to complete this module before you can perform the module on **Facilitating Learning Session.**

Training Methodology I
List of Competencies

No.	Unit of Competency	Module Title	Code
1.	Plan Training Session	Planning Training Session	
2.	Facilitate Competency-Based Training	Facilitating Competency-Based Training	
3.	Supervise Work-Based Learning	Supervising Work-Based Learning	
4.	Conduct Competency Assessment	Conducting Competency Assessment	
5.	Maintain Training Facilities	Maintaining Training Facilities	
6.	***Utilize Electronic Media in Facilitating Training Session***	***Utilizing Electronic Media in Facilitating Training Session***	

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PROGRAM/COURSE : **TRAINING METHODOLOGY Level 1**

UNIT OF COMPETENCY : **Utilize Electronic Media in Facilitating Training**

MODULE : **Utilizing Electronic Media in Facilitating Training**

Introduction:

This module covers the skills and knowledge and attitude required in advance training environment using electronic media in facilitating training, including operation and maintenance of the equipment.

Learning Outcomes

Upon completion of this module you must be able to:
1. Present a lesson through direct video footage/capture

2. Present lesson via film viewing method

3. Utilize computer and multimedia technology to present a lesson

Assessment Criteria:

1. Equipments are inspected for safe working condition operation in-line with manufacturer's user guide.

2. Set-up of equipment is performed in accordance with connection guide, safety practices and presentation requirements.

3. Equipment is operated based on presentation requirements and operation manual.

4. Presentation of lesson is executed through direct video footage/capture and in-line with session plan.

5. Equipment is stored in accordance with standard operating procedure.

6. Equipments are inspected for safe working condition and normal operation in-line with manufacturer's user guide.

7. Set-up of equipment is performed in accordance with connection guide, safety practices and presentation requirements.

8. Equipment is operated based on presentation requirements and operation manual.

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9. Learners are oriented prior to film viewing in-line with the expected outcome of the lesson.

10. Strategies to ensure that the learner will learn important information from the movie are implemented in-line with session plan.

11. Equipment is stored in accordance with standard operating procedure.

12. Equipments are inspected for safe working condition and normal operation in-line with manufacturer's user guide.

13. Set-up of equipment is performed in accordance with connection guide, safety practices and presentation requirements.

14. Equipment is operated based on presentation requirements and operation manual.

15. Teacher-centered presentation of a lesson is executed using a computer and in-line with session plan.

16. Learner-centered presentation of a lesson is executed using a computer and in-line with session plan.

17. Strategies to ensure that the learner will learn important information from the movie are implemented in-line with session plan.

18. Equipment is stored in accordance with standardoperating procedure.

Prerequisite

Before going through this module it is a must that you can already operate a computer.

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LEARNING OUTCOME SUMMARY

Learning Outcome 1	**Present a lesson through direct video footage/capture**
Contents: • Safety Handling of Electronic Equipment • The Video Camera Recorder • Operate a Video Camera Recorder • Tips and Tricks in Video Shooting • The LCD/DLP Projector • The Common Parts and Controls of an LCD/DLP Projector • Connect Video Camera Recorder To LCD/DLP Projector • The Public Address System • Major Parts of the Amplifier • Set-up Public Address System • Techniques in Demonstrating in Front of Video Camera	
Assessment Criteria: 1. Equipments are inspected for safe working condition and normal operation in-line with manufacturer's user guide. 2. Set-up of equipment is performed in accordance with connection guide, safety practices and presentation requirements. 3. Equipment is operated based on presentation requirements and operation manual. 4. Presentation of lesson is executed through direct video footage/capture and in-line with session plan. 5. Equipment is stored in accordance with standard operating procedure	

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Conditions:

Trainees must be provided with following:
- Electronic Media Equipment
    - Video Camera and recording media (i.e tape, disc)
    - Video Monitor/LCD Projector
    - P/A Systems (including Audio Mixers/ Audio Amplifies/ Microphones/ Speaker System)
- Equipment guide and user manuals
- Interconnection guide
- Connection cables
- Lighting equipment
- Modules

Assessment Method:
- Demonstration
- Oral Questioning
- Written examination

LEARNING EXPERIENCES

Learning Outcome 1	**Present a lesson through direct video footage/capture**
Learning Activities	**Special Instructions**
Read Information Sheet No. 6.1-1: Safety Handling of Electronics Equipment	
Answer Self-Check 6.1-1	
Check your answer using the Answer Key No. 6.1-1	
Read Information Sheet No. 6.1-2: The Video Camera Recorder	
Answer Self-Check 6.1-2	
Check your answer using the Answer Key No. 6.1-2	
Perform Task Sheet 6.1-2: Operate a Video Camera	Ask your trainer for you to have an access to a video camera recorder. Your trainer will evaluate your performance using the procedural checklist.
Read Information Sheet 6.1-3: Tips and Tricks in Video Shooting	
Answer Self-Check 6.1-3	
Check your answer using the Answer Key 6.1-3	
Check your answer using the Answer Key No. 6.1-3.	
Read Information Sheet No. 6.1-4: The LCD/DLP Projector	
Answer Self-Check 6.1-4	
Check your answer using the Answer Key No. 6.1.4	
Read Information Sheet No. 6.1.5: The Common Parts and Controls of LCD/DLP Projector	

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Answer Self-Check 6.1-5:	
Check your answer using the Answer Key No. 1.6-5	
Read Task Sheet No 1.6-2 Connect Video Camera to LCD/DLP Projector	Ask your trainer for you to have an access to a video camera recorder and LCD/DLP Projector. Your trainer will evaluate your performance using the procedural checklist.
Read Information Sheet No. 6.1-6 The Public Address System	
Answer Self-Check 6.1-6	
Check your answer using the Answer Key No. 6.1-6	
Read Information Sheet No. 6,1-7 Major Parts of the Amplifier	
Answer Self-Check 6.1-7	
Check your answer using the Answer Key No. 6.1-7	
Perform Task Sheet No. 6.1-3 Set-up Public Address System	Ask your trainer for you to have an access to an amplifier, Microphone, Speakers and a mixer (optional). Your trainer will evaluate your performance using the procedural checklist
Read Information Sheet No. 6.1-8 Techniques in Demonstrating in Front of Video Camera	
Answer Self-Check 6.1-8	
Check your answer using the Answer Key No. 6.1-8	

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Read Job Sheet No. 6.1.1 Present a Demonstration Lesson in Through Direct Video Footage/Capture	Ask your trainer for you to have an access to an amplifier, Video Camera Recorder, LCD/DLP Projector, and a Public Address System. Your trainer will evaluate your performance using the Performance Checklist

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Information Sheet No. 6.1-1
Safety Handling of Electronic Equipment

Objective:

After reading this information sheet, you must be able to explain the safety handling procedure of the different electronic equipment.

General Safety Procedure

All electronic products are considered to have risks of electric shock. To avoid these risks do the following:

1. Read user's manual before using the equipment.
2. Keep the user's manual for future reference
3. Follow all instructions as stated in the manual.
4. Install all equipment in accordance to manufacturer's manual.
5. Clean all equipment with dry cloth.
6. Only use attachments/accessories specified by the manufacturer.
7. Refer all servicing to qualified service personnel.
8. Do not let object or liquids enter to the equipment.
9. See equipment enclosure for safety related markings.

Safety Handling of Electronic Equipments

Following proper safety practices are a must when working with electronic equipment. Not only is there the danger of electrical shock, equipment can explode if not connected properly. Many of today's electronic equipments are easily damaged by improper handling. These equipments are expensive and can be easily damaged if proper operating procedures are not followed.

Handling Video Camera Recorders

1. Do not expose video camera recorders to rain, water nor moisture.
2. Do not expose video camera recorders to temperature more than 60 degrees centigrade.
3. Do not carry the video camera by its microphone, LCD, viewfinder, battery pack or by its cable.

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4. Do not directly expose lens and viewfinder directly to strong light or sunlight.

5. Handle it with care. Do not subject the video camera recorder to shocks or vibrations as this will cause damage.

6. Do not disassemble the camcorder. If it does not function properly, consult qualified service personnel.

Handling Battery Packs

1. Keep it away from fire or it might explode

2. Do not expose the battery pack to temperature higher than 60 degrees centigrade. Do not leave it near stove or inside the car in hot weather.

3. Do not try to disassemble or modify it.

4. Do not drop or knock it.

5. Do not get it wet.

Handling LCD Projectors

1. Place the LCD projector in a sturdy flat surface

2. Do not block opening (ventilation) of the projector

3. Do not drop liquid or object to projectors.

4. Do not install projectors near the source of heat.

5. Do not unplug projectors after turning it OFF. LCD projectors are equipped with cooling fans that automatically turn OFF after meeting the projectors cooling temperature; this will prolong the life of the expensive powerful lamp of your projector.

6. Do not look into the projector's lens when the lamp is on. The bright light may hurt or damage your eyes.

7. Do not use lens cap when projector is in operation.

8. Refer servicing to qualified service personnel.

Handling Amplifiers

1. Do not block ventilation opening of the amplifier.

2. Before turning it ON, make it sure that the volume control is set to its lowest setting or to zero(0).

3. Make it sure that the speakers are properly connected to the

amplifier (correct polarization).

Video Players

1. Do not expose the player, discs to humidity, rain, sand or excessive heat (caused by heating equipment or direct sunlight).

2. Do not operate the player in an enclosed cabinet, allow about 10 cm (4 inch) of free space all around the player for adequate ventilation.

3. When cleaning the casing of the video player use a soft cloth slightly moistened with a mild detergent solution. Do not use a solution containing alcohol, thinner, ammonia or abrasives.

Personal Computers

1. Place your computer in a flat, sturdy and clean surface.

2. Avoid eating and drinking beside your computer.

3. Properly shutdown your computer and make it sure that you have closed all open applications before shutting down.

4. Always perform virus scan to your computer at least once a week.

5. Always perform disk cleanup to remove unwanted files.

6. Have the unit cleaned twice a year to remove internal dust.

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Self-Check No. 6.1-1

True or False

Direction: Write T if the state is correct and F if the statement is false. Write your answer on the space provided before each number.

_____1. All repair or servicing work of electronic equipment must be done only by a qualified service technician.

_____2. The lens of a video camera can be exposed to strong light or sunlight.

_____3. Always perform disk clean-up to remove internal dust.

_____4. Allow an inch distance around the video player for adequate ventilation.

_____5. Unplug immediately the projector after turning it OFF.

_____6. Carry a video camera by its built-in microphone and by the handle.

_____7. Place your computer on a flat and sturdy table.

_____8. Do not expose video camera recorders to rain, water nor moisture.

_____9. Make it sure that the speakers are properly connected to the amplifier.

_____10. Cover lens with lens cap when the LCD projector is in operation.

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Answer Key No. 6.1-1

TRUE OR FALSE

1. T
2. F
3. F
4. F
5. F
6. F
7. T
8. T
9. T
10. F

Information Sheet No. 6.1-2
The Video Camera Recorder

Learning Objectives:

After reading this information sheet, you must be able to:

1. describe a video camera recorder;

2. identify the different types of video camera recorder

A video camera recorder also known as camcorder is an electronic device that combines a digital camera and a video recorder into one unit.

A video camera recorder contain 3 major components: lens, imager, and recorder. The lens gathers and focuses light on the imager. The imager, usually a charge-coupled device (CCD) or complementary metal–oxide–semiconductor (CMOS) sensor on modern camcorders, converts incident light into an electrical signal. Finally, the recorder converts the electric signal into digital video and encodes it into a storable form. More commonly, the optics and imager are referred to as the *camera* section.

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Lens

The lens is the first component in the light path. The camcorder's optics generally have one or more of the following adjustments for manual control:

Zoom

This is the function which moves your point of view closer to, or further away from, the subject. The effect is similar to moving the camera closer or further away.

Note that the further you zoom in, the more difficult it is to keep the picture steady. In some cases you can move the camera closer to the subject and then zoom out so you have basically the same framing. For long zooms you should use a tripod.

Zooming is the function everyone loves. It's easy and you can do lots with it, which is why it's so over-used. The most common advice we give on using the zoom is *use it less.* It works well in moderation but too much zooming is tiring for the audience.

Focus

Auto-focus is strictly for amateurs. Unlike still photography, there is no way auto-focus can meet the needs of a serious video camera operator. Many people find manual focus difficult, but if you want to be any good at all, good focus control is essential.

Professional cameras usually have a manual focus ring at the front of the lens housing. Turn the ring *clo*ckwise for *clo*ser focus, anti-clockwise for more distant focus. Consumer cameras have different types of focus mechanisms — usually a small dial.

To obtain the best focus, zoom in as close as you can on the subject you wish to focus on, adjust the ring until the focus is sharp, then zoom out to the required framing.

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Iris

This is an adjustable opening (aperture), which controls the amount of light coming through the lens (i.e. the "exposure"). As you open the iris, more light comes in and the picture appears brighter.

Iris Ring

Professional cameras have an iris ring on the lens housing, which you turn *cloc*kwise to *clo*se and anticlockwise to open. Consumer-level cameras usually use either a dial or a set of buttons.

The rule of thumb for iris control is: *Set your exposure for the subject*. Other parts of the picture can be too bright or darks, as long as the subject is easy to see.

- *Shutter speed* to regulate the exposure and to maintain desired motion portrayal

- *Gain* to amplify signal strength in low-light conditions

- *Neutral density filter* to regulate the exposure

Neutral Density (ND) Filter

Shutter Dial   Gain

In consumer units, the above adjustments are often automatically controlled by the camcorder's electronics, but can be adjusted manually if desired. Professional units offer direct user control of all major optical functions.

Imager

The imager converts light into electric signal. The camera lens projects an image onto the imager surface, exposing the photosensitive array to light. The light exposure is converted into electrical charge. At the end of the timed exposure, the imager converts the accumulated charge into a continuous analog voltage at the imager's output terminals. After scan-out is complete, the photosites are reset to start the exposure-process for the next video frame.

With the first (digital) camcorders, an analog-to-digital (ADC) converter digitized the imager (analog) waveform output into a discrete digital-video signal. The imager in these cameras was a CCD which was analogue by nature. Modern cameras will generally have a CMOS chip in place of a CCD as a CMOS is completely digital in nature and there is no analogue voltage signal to digitize because the light is sampled directly by each pixel and converted to a binary digital signal per each pixel.

CCD chips will generally see better in low light conditions because of the CCD's nature of capturing more light in the infrared range, but will severely lack in the human visibility spectrum, thus sacrificing color, on the other hand CMOS imagers do not have great low light capability but will capture the visible spectrum better and thus displaying color properly.

Recorder

The third section, the recorder, is responsible for writing the video-signal onto a recording medium (such as magnetic videotape.) The record function involves many signal-processing steps, and historically, the recording-process introduced some distortion and noise into the stored video, such that playback of the stored-signal may not retain the same characteristics/detail as the live video feed.

All but the most primitive camcorders imaginable also need to have a recorder-controlling section which allows the user to control the camcorder, switch the recorder into playback mode for reviewing the recorded footage and an image control section which controls exposure, focus and white-balance.

Types of Video Camera Recorder

In order to differentiate a camcorder from other devices that are capable of recording video, like mobile phones and digital compact cameras, a camcorder is generally identified as a portable, self-contained

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device having video capture and recording as its primary function.

Video Camera Format

Camcorders are often classified by their storage device: VHS, Betamax, Video8 are examples of 20th videotape-based camcorders which record video in analog form. Newer digital video camcorder formats include Digital8, MiniDV, DVD, and flash semiconductor memory.

Single CCD and 3-CCD
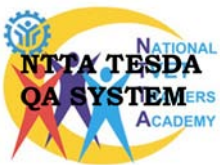
Sensor is the heart of digital imaging devices - digital cameras and camcorders. Generally, our digital image capture devices are equipped with CCD or CMOS sensor that helps convert light into electrical signals that represents the image and can be digitally stored. The captured image quality vary by the CCD size and also the CCD system. Currently the are two most widely used systems are Single CCD and 3-CCD system. Since most devices use CCD rather than CMOS, we'll focus on CCD technology.

Single CCD system

This system is commonly used in consumer level camcorders and has been widely in used on digital cameras.
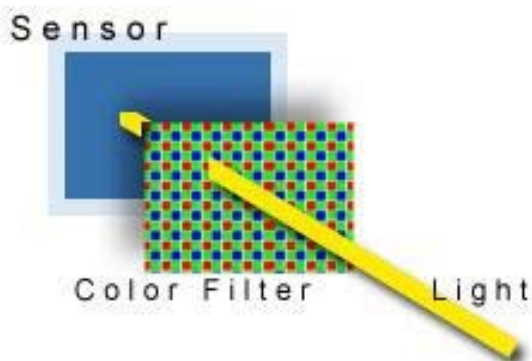
Sony Handycam with a single CCD

3-CCD System

3-CCD system uses a beam splitting prism to separate light passing through the lens into 3 individual components and each is sent to its own CCD. This technology reproduces color in great fidelity and high accuracy but slightly reduced light sensitivity.

Normally 3-CCD system is used in professional range products but now you can find even it on some consumer level DV camcorders.
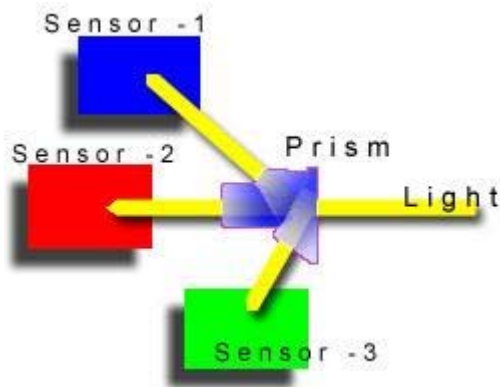
A SONY digital video camera with 3-CCD

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Self-Check No. 6.1-2

Multiple Choice: Read the statement or questions carefully, select the correct answer and write it on the space provided before each number.

_____1. What is the lens adjustment control that regulates exposure and depth of field?

        A. aperture

        B. gain

        C. shutter speed

        D. zoom

_____2. A video camera recorder component that converts light into electrical signal.

        A. Lens

        B. Imager

        C. Recorder

        D. D. Sensor

_____3. An example of a digital video format.

        A. Betamax

        B. Video8

        C. MiniDV

        D. VHS

_____4. A lens adjustment control that regulates focal length.

        A. aperture

        B. gain

        C. shutter speed

        D. zoom

_____5. A CCD system that uses a beam splitting prism to separate light passing through the lens into 3 individual components and each is sent to its own CCD.

        A. Single CCD

        B. 3-CCD

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Answer Key 6.1-2

Multiple Choice

1. A
2. B
3. C
4. D
5. B

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Task Sheet No. 6.1-1

Operate a Video Camera Recorder

Performance Objectives:

Given a video camera recorder, battery pack and a miniDV cassette you are to supply power, load/remove video cassette, record video and play video following the procedure presented in this task sheet.

The major parts of the video camera had been explained in the previous lesson, an important lesson in introducing the equipment that you will use latter for this learning outcome. This task will teach you how to operate the video camera recorder. The procedure listed here covers only basic operations of CANON XHG1 digital video camera recorder. To avoid damaging your digital video camera, it is advisable to first read the instruction manual that comes with it.

a. Preparing the power supply of a video camera

Procedure in charging the battery pack

1. Connect the power chord to the adapter.
2. Plug the power cord into a power outlet.
3. Attach the battery pack to the adapter.
4. Press lightly and slide the battery pack in the direction of the arrow until it clicks.

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5. The charge indicator starts flashing. The indicator will stay on when the charging is completed.

6. When the charging is completed, remove the battery pack from the adapter.

7. Unplug the power cord from the power outlet and disconnect it from the adapter.

Attaching the battery pack

1. Turn the POWER dial to OFF.

2. Push the OPEN switch in the direction of the arrow to open the battery compartment cover.

3. Insert the battery all the way into the compartment and press gently until it clicks.

4. Close the battery compartment cover.
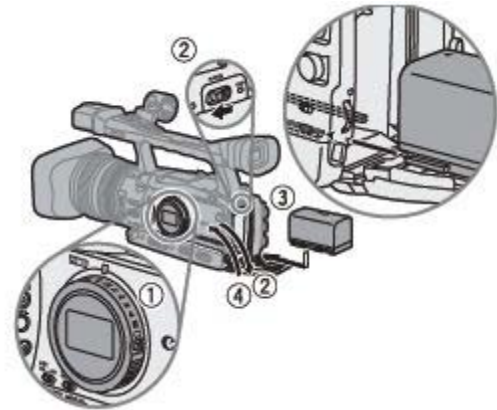
Removing the battery

1. Turn the POWER dial to OFF.

2. Push the OPEN switch in the direction of the arrow to open the battery compartment cover.

3. Press the BATT. RELEASE latch left and pull out the battery.

4. Close the battery compartment cover.

Connecting to a wall outlet

1. Turn the POWER dial OFF.

2. Attach a DC coupler to the camcorder. Open the battery compartment cover and DC coupler all the way into the compartment and press gently until it clicks.

3. Connect the power cord to the power adapter.

4. Plug the power cord into the power outlet.

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5. Connect the DC coupler to the adapter.

6. Press the cable through the special slot and close battery compartment cover.

7. Detach the DC coupler after use.

b. Loading/Removing Cassette

Note:

1. Do not interfere with the cassette compartment while it is opening or closing automatically.

2. Be careful not to get your fingers caught in the cassette compartment.

3. Cassette can be loaded/removed even if the POWER dial is set to OFF.

Procedure:

1. Slide the OPEN/EJECT switch to open the cassette compartment cover. The cassette compartment opens automatically.
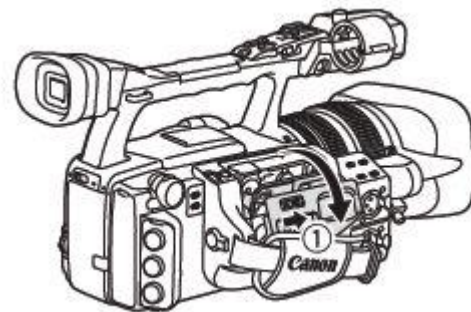
2. Load/remove the cassette. Insert cassette straight, fully into the compartment with the window facing out. Remove the cassette by pulling it straight out.

3. Close the cassette compartment by pressing on the PUSH mark on the cover. The cassette compartment will retract automatically.
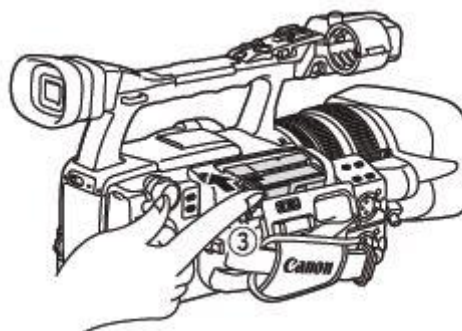
4. Close the cassette compartment cover.
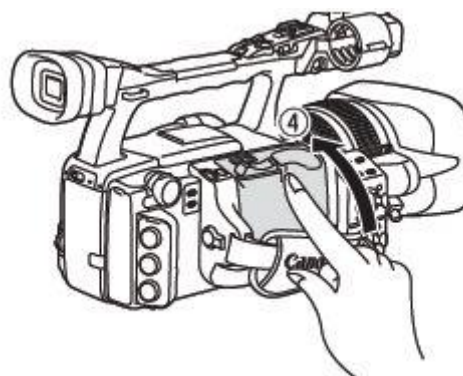
c. Recording

Most of the video camera has a selector on recording mode, some can be done by just selecting on display menu, and some can be done using a button. Read the instruction or user's manual that comes with your video camera and study how you can start recording a video or you can ask your trainer how to go video recording mode.

Usually your video camera has this start/stop button. To begin recording, press the start/stop button. Make sure that you have power ON your video camera and you have loaded a video cassette on its compartment
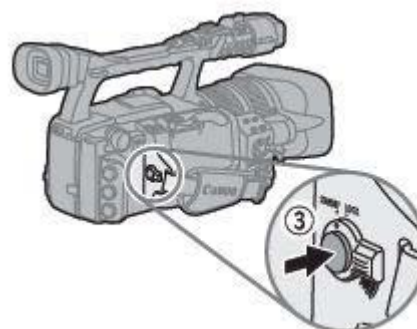
The tally lamp lights up and the recording indicator appear on LCD screen.

Press the start/stop button again to pause recording

d. Playing your recorded video

All video camera has its own playback mode or VCR mode. Select the Playback Mode. Locate the Rewind Button of the VCR controls, and press it to rewind the recorded video, if you over rewind the recorded video you can press the Forward Button to forward to your desired recorded video section.

To pause playback press pause button of the camcorder during normal playback.

You can also search the recorded video by pressing down playback and holding the rewind or fast forward button on the camcorder.

When you have finished recording
- Set the POWER dial to OFF
- Replace the lens cap
- Remove the cassette

Procedural Checklist 6.1-1
OPERATING A DIGITAL VIDEO CAMERA

Trainees Name: _____

During the performance of the above mentioned task, did you follow the step by step procedure?

Procedures	YES	NO
A. Charging battery pack		
1. Connect the power chord to the adapter.		
2. Plug the power cord into a power outlet.		
3. Attach the battery pack to the adapter.		
4. Press lightly and slide the battery pack in the direction of the arrow until it clicks.		
5. Remove the battery pack from the adapter.		
6. Unplug the power cord from the power outlet and disconnect it from the adapter		
B. Loading and **removing video cassette**		
1. Slide the OPEN/EJECT switch to open the cassette compartment cover.		
2. Remove the cassette by pulling it straight out.		
3. Insert cassette straight, fully into the compartment with the window facing out.		
4. Close the cassette compartment by pressing on the PUSH mark on the cover.		
5. Close the cassette compartment cover.		
C. Recording Video		
1. Locate the video recording control of the video camera recorder		

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2. Press the start/stop button to begin recording		

3. Press the start/stop button again to pause recording		
D. Playing Back a Tape		
1. Set the video camera to VCR/PLAY.		
2. Play the recorded video		
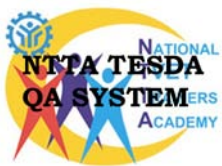
For satisfactory achievement, all items should receive a YES response.

Comment:

Trainer's Name and Signature: _____

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Information Sheet No. 6.1-3
Tips and Tricks in Video Shooting

Learning Objectives

After reading this information sheet, you must be able to:

1. Identify the basic camcorder video camera recorder movement.
2. Identify the basic types of video camera recorder shot.
3. Identify video camera recorder shooting tips and tricks.

If you've never shot video on a camcorder shooting your first video can be a little intimidating. Many first time camcorder users make mistakes that make their video for the most part unwatchable. Here are some basic camcorder shooting tips that can help you shoot fantastic videos.

Basic Video Camera Movement

Zooming

A *zoom* is technically not a camera move as it does not require the camera itself to move at all. Zooming means altering the focal length of the lens to give the illusion of moving closer to or further away from the action.

The effect is not quite the same though. Zooming is effectively magnifying a part of the image, while moving the camera creates a difference in perspective background objects appear to change in relation to foreground objects. Zooming is an easy-to-use but hard-to-get-right feature of most cameras. It is arguably the most misused of all camera functions.

At times, zooming in while shooting or recording video can make the demonstration more interesting. Zooming can make a certain part of a video carry more importance or have more impact. For example, you may want to show a detail such as a handshake between two people. Zooming in on a handshake draws attention to it and stresses the importance of this handshake.

Zooming is easy. There is a zoom control on the camera above the record button. Shifting this button slowly allows for a gradual zoom. Be careful though, if you zoom too rapidly, your audience will feel jarred by the sudden motion!

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Camera Tilt

A *tilt* is a vertical camera movement in which the camera points up or down from a stationary location. For example, if you mount a camera on your shoulder and nod it up and down, you are tilting the camera.

Tilting is less common than panning because that's the way humans work — we look left and right more often than we look up and down.

Camera Pan

A *pan* is a horizontal camera movement in which the camera moves left and right about a central axis. This is a swiveling movement, i.e. mounted in a fixed location on a tripod or shoulder.

Types of Video Camera Shot

Wide Shot (WS)

In the *wide shot*, the subject takes up the full frame. In this case, the boy's feet are almost at the bottom of frame and his head is almost at the top. Obviously the subject doesn't take up the whole width and height of the frame, since this is as close as we can get without losing any part of him. The small amount of room above and below the subject can be thought of as safety room — you don't want to be cutting the top of the head off. It would also look uncomfortable if his feet and head were exactly at the top and bottom of frame.

Mid Shot (MS)

The *mid shot* shows some part of the subject in more detail, whilst still showing enough for the audience to feel as if

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they were looking at the whole subject. In fact, this is an approximation of how you would see a person "in the flesh" if you were having a casual conversation. You wouldn't be paying any attention to their lower body, so that part of the picture is unnecessary.

The MS is appropriate when the subject is speaking without too much emotion or intense concentration. It also works well when the intent is to deliver information, which is why it is frequently used by television news presenters. You will often see a story begin with a MS of the reporter (providing information), followed by closer shots of interview subjects (providing reactions and emotion).

Close Up Shot (CU)

In the close-up shot, a certain feature or part of the subject takes up most of the frame. A close up of a person usually means a close up of their face (unless specified otherwise).

Close-ups are obviously useful for showing detail and can also be used as a cut-in.

A close-up of a emphasizes their emotional state. Whereas a mid-shot or wide-shot is more appropriate for delivering facts and general information, a close-up exaggerates facial expressions which convey emotion. The viewer is drawn into the subject's personal space and shares their feelings.

Cut-in Shot (CI)

This shot specifically refers to showing some part of the subject in detail. Can be used purely as an edit point, or to emphasize emotion and action of the hands. etc. For example, hand movements performing a task, can also show enthusiasm, agitation,

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nervousness, etc.

Video Camera Tips and Tricks

Watch the Zoom

In general when you shoot a video you want to limit the amount of time you zoom in and out. Many new camcorder users will zoom in and out constantly with their camcorder. Video shot in this manner usually ends up making viewers nauseous with the constant movement. Using the zoom on your camcorder is a good idea, but try to only use the feature when you need it. A good slow steady zoom into a subject is also usually much nicer to watch than a quick zoom in to a subject.

Bring a Tripod

Chances are you have seen video recorded by someone who did not have a tripod. Handheld video usually looks great for the first few minutes, then as the person recording the video gets tired the video starts to look worse. You naturally move up and down slightly when you breathe, if your holding a camcorder then that motion is exaggerated on video and can make it look like you were jumping up and down while holding your camcorder. Along those same lines, if you are shooting a video handheld then you want to make sure the image stabilization on your camcorder in enabled. Image stabilization will help even out the movements your camcorder makes and minimize shaking in your finished video.

Turn On the Lights

Camcorders typically have a difficult time recording video in darker areas. Camcorders will typically make video shot in dim areas look as though it was shot in complete darkness. If you have the ability to turn on more lights where you are, do it or use video camera lighting system. The brighter the area you are recording the better.

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Do a Little Shot Composition

The purpose of taping something is so you will be able to remember and enjoy it later. Before you hit the record button, look at your shot and see if you have everything in it that you want and that it is framed nicely. Do this as you would if you were taking a still picture; prior to pressing 'record,' not after. Good shot composition uses the 'Rule of Thirds.' This is where you treat the screen as being divided into a tic-tac-toe pattern. When framing a person, you want their eyes on the top line and the center of their head on the left or the right line (i.e., facing inward). Although this may cut off the top of the subject's head, it will provide the proper balance and really make your shot look professional.

Let Your Camera Follow the Action

This may seem obvious, but keep your viewfinder on the ball. Your viewers' eyes will want to follow the action, so give them what they want.

Self-Check 6.1-3

Multiple Choice: Read the statement or questions carefully, select the correct answer and write it on the space provided before each number.

_____1. Vertical camera movement in which the camera points up and down from a stationary location.
   A. Pan

   B. Tilt

   C. Zoom

_____2. A video camera shot where the subject takes up the full screen.
   A. Mid Shot

   B. Close-up

   C. Cut-in Shot

   D. Wide Shot

_____3. This shot specifically is used to emphasize motion or action of the hands.
   A. Mid Shot

   B. Close-up

   C. Cut-in Shot

   D. Wide Shot

_____4. A horizontal camera movement in which the camera moves left and right at a central axis.

   A. Pan

   B. Tilt

   C. Zoom

_____5. A camera shot that can be used when the subject is presenting information.

   A. Mid Shot

   B. Close-up

   C. Cut-in Shot

   D. Wide Shot

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Answer Key 6.1-3

1. B

2. D

3. C

4. A

5. A

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Information Sheet No. 6.1-4
The LCD/DLP Projector

Learning Objectives:

After reading this Information Sheet, you must be able to:

1. describe an LCD/DLP projector;
2. identify the different features of an LCD/DLP projector;
3. explain the advantages and limitation of an LCD/DLP projector;
4. describe keystone effect.

The LCD and DLP Projector

Projectors can be broadly catogorised into two technologies, DLP (Digital Light Processing) or LCD (Liquid Crystal Display). This refers to the internal mechanisms that the projector uses to compose the image.

Until recently, LCD was reserved for less expensive designs while DLP models held the performance edge for high-end projectors. However, recent advances have seen both technologies converge and in most cases there is less of a reason to pick one technology over another.

LCD technology has improved immensely in the last year or two while DLP models are more competitively priced than ever before. So in short both technologies are now able to offer crisp, clear and vibrant images, the main consideration to make on which projector is right for you is down to the more specific requirements such as brightness, resolution, contrast and connectivity.

It is worth mentioning though before you read on that despite the advancement in both technologies, LCD and DLP still each have unique advantages over one another, which is why its important to understand what each of the technologies has to offer.

DLP

DLP technology can be found in projectors from manufacturers such as BenQ ,InFocus and Optoma.

Digital Light Processing™ is the world's only all-digital display solution. DLP™ technology uses an optical semiconductor, known as

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the Digital Micromirror Device, or DMD chip to recreate source material. Please click on the icon below to launch a Flash demo to show you how it works.
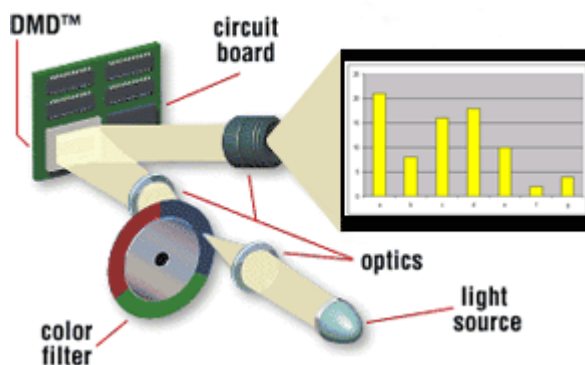
Advantages of DLP

- Less 'chicken wire' (or 'screen door') effect because pixels are much closer together. This doesn't make so much difference with data, but it produces smoother images for video.
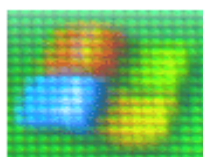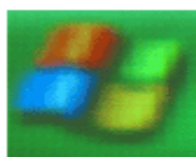
A comparrison of an LCD and DLP projection to illustrate the 'screen door' or 'chicken wire effect on LCD projections.

- Higher contrast achievable.

- DLP has sealed optics which makes them better for use in a dusty environment.

- DLP projectors are generally more poratable as fewer components are required.

Disadvantages of DLP

The 'rainbow' effect, appearing as a momentary flash of rainbow-like striping typically trailing the bright objects when looking from one side of the screen to the other, or when looking away from the projected image to an offscreen object. Only some people see this effect, or you can create it for yourself by moving your eyes very quickly across the screen. There are two types of DLP projector - the old ones had four segments on the colour wheel, the new ones have six or even seven and spin faster, which means less rainbow effect and more saturated colour.

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The 'halo' effect (or 'light leakage'). It may bother some people using their projector for home cinema. Basically it's a grey band around the outside of the image, caused by stray light being bounced off the edges of the tiny mirrors on the DLP chip. It can be a distraction, but can be overcome by having a black border a few inches wide around the screen, so the halo falls on to the border. However the halo effect is less evident in the newer DLP chips such as the DDR chip

LCD

LCD technology is used by many manufacturer's such as Epson, Hitachi ,Sanyo and Sony.

LCD (liquid crystal display) projectors contain three separate LCD glass panels, one for red, green, and blue components of the image signal being transfered to the projector. As the light passes through the LCD panels, individual pixels can be opened to allow light to pass or closed to block the light. This activity modulates the light and produces the image that is projected onto the screen.
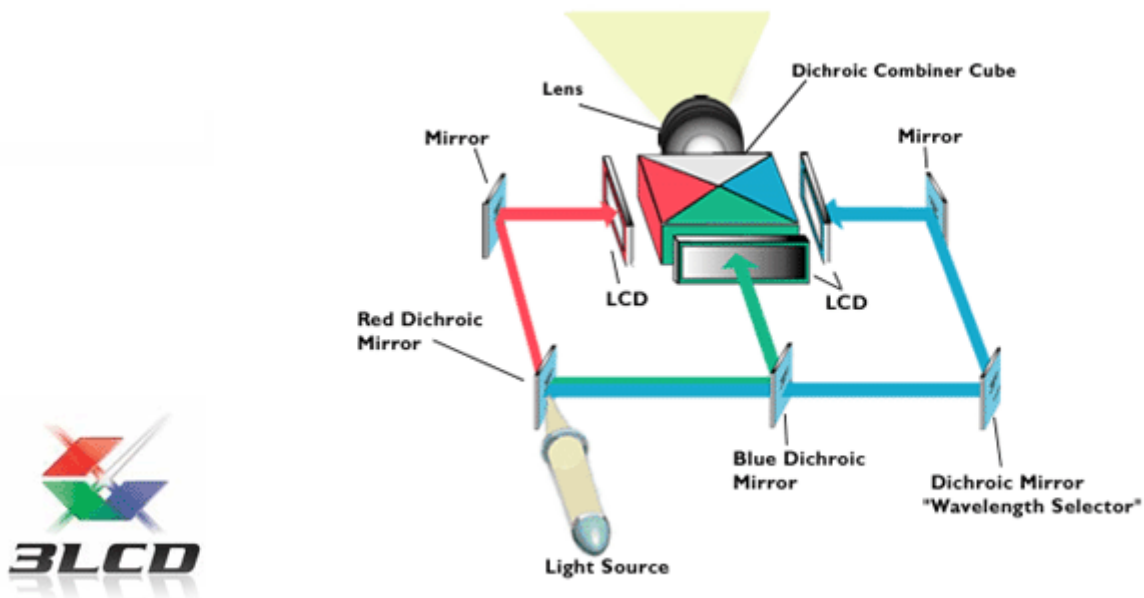
Advantages of LCD

- LCD is generally more 'light efficient' than DLP (ie. the same wattage lamp in both an LCD and DLP would produce a brighter image through the LCD).

- With 3LCD projectors, you get beautiful colour in clear, defined images - even in a bright room, and you get more than double the brightness on colour luminance, compared to non-3LCD projectors. What's more, 3LCD projectors can project bright, vivid images with a low output lamp.

- Hence, with a data signal, if you put a 1000 lumen LCD next to a 1200 lumen DLP and showed a colour image people would probably prefer the LCD for brightness.

- LCD tends to produce a sharper image (ie. more precisely focused). This can actually be a bit of a disadvantage for video, where it makes the pixellation more obvious.

Disadvantages of LCD

- Chicken wire effect causing the image to look more pixellated. Though with the recent advancements in 3LCD technology this is now barely noticeable.

- Generally more bulky, as there are more internal components.

- 'Dead Pixels' - Pixels can become permanently on or permanently off, while this is barely noticeable with one dead pixel, if the projector develops multiple dead pixels it can be an irritation.

- LCD panels can fail, and are very expensive to replace. DLP chips can also fail but as there are fewer parts in a DLP projector this is relatively rare.

Features of an LCD Projector

Projector Resolution

Resolution refers to the number of dots of light that appears on a screen or a projected image. Even though some projectors may be able to work with several resolutions, there is one "native" resolution at which it works best. To get the best image, match the resolution of your projector with the resolution of your computer. Most new projectors have higher resolutions to match most current laptop computers. The most common resolution today is XGA (1,024 x 768). Higher resolutions, such as SXGA (1,280 x 1,024), would mean you'll have to pay a higher price for the projector.

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Projector Resolution Options

Resolution	Description
SVGA 800 x 600	SVGA projectors are great for those on a tight budget. They are good for Power Point presentations or those that include clip art or line drawings. They're good for black and white, showing documents, etc. They are not good for presentations that require a lot of detail.
*XGA 1,024 x 768	Most computers still output in native XGA. Matching an XGA projector to your computer ensures you won't lose any detail. These are good general purpose projectors.
SXGA 1,280 x 1,024	SXGA projectors are of high resolution and are more expensive than XGA. These products are targeted for high-end personal computer users and low-end workstation users.
SXGA+ 1,400 x 1,050	SXGA+ projectors are becoming more popular and there are several offerings available in both budget and high-end configurations. These are very good for detailed photography and graphics.
UXGA 1,600 x 1,200	UXGA is for very high-end high resolution workstation applications that require exacting detail. These are expensive projectors that support a broad range of computer equipment.

* The most popular projector resolution

NOTE: *For best results, match the resolution of your computer with the native resolution of the projector.*

Image Quality

There are four factors that affect the quality of image. They are contrast, color, brightness, and evenness of the illumination across the picture. The best way to get the highest quality image is to match the resolution of your projector with that of your computer. Every year, computers are sold with higher and higher resolutions with the XGA 1024 x 768 sold at 4:3 aspect ratio as the most popular today.

Contrast Ratio

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Contrast is the difference between the brightest (white) and darkest (black) parts of the screen. Contrast helps to define the depth of an image, and is important when projecting video images. A good projector will have a contrast ratio of at least 250:1 or more. The higher the contrast ratio, the better the projected image with the best quality projectors having a contrast ratio of 2,000:1.

Color

The more colors you projector can support, the better it will be able to project high quality images and video. Color helps to define the depth of an image, by adding shades to the objects displayed. Projectors should display 16 million colors or more which is adequate for computer screens and video.

Brightness

The bigger the audience or room, the bigger and brighter the image must be. The brightness level of a projector depends on the kind of environment you will be using with it. Will you be in a small classroom, a conference room, or a large lecture hall or auditorium? Will the room be lit or darkened?

These are some of the factors you must consider when purchasing an LCD projector. Trade show floors, for example, and other lighted environments require brighter images, while darkened rooms need less brightness. Typically, you should have at least 1,000 lumens to project effectively in a lighted room. For very large installations, 10,000 lumens are required.

Illumination Uniformity

As you compare projectors, notice how the projector fills the screen. Is it even from side to side and top to bottom? Avoid dark corners of the image and bright centers. Illumination uniformity refers to the percentage of brightness that is carried across your screen from edge to edge and top to bottom. A higher uniformity rating means more uniform image brightness across your screen. If you want uniformity, it must be at a level of 85% or higher.

Projector Lenses

Zoom lenses are almost standard on today's projectors. The zoom lens lets you project a larger or smaller image on your screen depending on the distance between your projector and the screen. The best lenses are manufactured with glass, but some models are using plastic lenses to cut down on weight. Glass will give you a clearer, sharper image. Some projectors are, also, available with interchangeable lenses. The f-number of the lens is a measure of how much light gets through the lens to the screen.

Projector Lamps

Projector lamps are one of the hidden costs of a projector. It's like toner cartridges for printers. Over the life of the printer, you'll probably pay more for the toner cartridges than you originally paid for the printer. The same is true for projectors. The lamp is the most expensive part of the projector. The lamp type is related to the image brightness. The most common types of projector lamps are the following:

UHP - Ultra High Performance
UHE - Ultra High Efficiency
Some projectors also use metal halide lamps.

Lamp life is rated in hours. The typical lamp life for a projector is between 1,000 and 4,000 hours and depending on how much the projector is used, can add to the total cost of operating a projector over a given period of time. Replacement bulbs run anywhere from P 15,000 to P 30,000. A lower watt lamp will stay cooler and last longer than a higher watt bulb. Since it uses less power, it will also cost less to operate.

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Other Features of a Projector
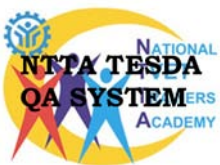
Today's LCD projectors are very easy to use. They are plug-n-play and require only a few minutes to set up. Some projectors come with additional features that can be very convenient and it is suggested that they are the ones you should consider in your purchase decision.

- Some LCD projectors are wireless for easy set-up and no cables to mess with.

- Network connections so that projector can be controlled from a remote location

- Component video inputs for higher quality video. This is the preferred input for projecting video.

- Digital Keystone Correction for adjusting the rectangular shape on the screen when the projector cannot be positioned perpendicular to the screen.

- Wireless mouse control for freedom to move around while you are presenting.

- Dual computer inputs for hooking up to more than one computer.

Projector Aspect Ratios

Aspect ratios refer to the number of units wide to the number of units high of your LCD projector display. For years, the standard was 4:3, but with the popularity of wide screens, the new option is 16 x 9. A 4 x 3 display is squarer than the rectangular-shaped 16 x 9.

Screen/Display Aspect Ratios

16 x 9
Wide Screen 16 x 9

4 x 3
Standard Screen 4 x 3

Keystone Effect

The keystone effect is caused by attempting to project an image onto a surface at an angle, as with a projector not quite centered onto the screen it is projecting on. It is a distortion of the image dimensions, making it look like a trapezoid, the shape of an architectural keystone; hence the name of the feature. In the typical case of a projector sitting on a table, and looking upwards to the screen, the image is larger at the top than on the bottom. Some areas of the screen may not be focused correctly as the projector lens is focused at the average distance only.

Two types of keystone effects

- **Vertical keystone effects** – This usually occurs when the projector is above or below the centerline of the screen.
- **Horizontal keystone effects** – This happens when the projector is to the left or right of the screen.

Vertical keystone effects

Horizontal keystone effects

![NTTA TESDA QA SYSTEM Logo]	**CBLMs on Trainers Methodology Level I Utilizing Electronic Media in Facilitating Training**	Date Developed: July 2010 Date Revised: March 2012	Document No.:	
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Self-Check No. 6.1-4

Directions: Read each statement or question carefully. On your answer sheet, write the correct answer.

_____1. A projector resolution that fits to a 4X3 projection screen.

      A. SVGA (800x600)

      B. XGA(1,024x768)

      C. SXGA (1,280x1,024)

      D. SXGA+ (1,400x1,050)

_____2. The dichroic mirrors in LCD projectors separate the light into the three primary colors. What are these?

      A. Blue, Green and Yellow

      B. Green, Red and Yellow

      C. Green, Red and Blue

      D. Red, Yellow and Blue

_____3. A very expensive replaceable part of the LCD projector.

      A. Dichroic panel

      B. LCD Panel

      C. Projection lamp

      D. Projection lens

_____4. What LCD projector feature lets you project a larger or smaller image on your screen depending on the distance between your projector and the screen?

      A. Dichroic panel

      B. LCD Panel

      C. Projection lamp

      D. Projection lens

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Answer Key No. 6.1-4

Multiple Choice

1. B
2. C
3. C
4. D

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Information Sheet No. 6.1-5
The Common Parts and Controls of an LCD/DLP Projector

Objective:

    After reading this information sheet you must be able to:

1. Explain the common parts of LCD/DLP Projectors.

2. Identify and explain the different controls of an LCD/DLP Projector.

    LCD/DLP projectors also known as multimedia projectors are considered as very helpful tools in conducting training. You as a trainer must know how to operate this in order to maximize its training use. A good knowledge of its parts and function of its common controls will be of great help to you.

Main Parts of a Multimedia Projector

1. Control Panel - you can change setting of your projector using the different controls buttons, like power, source, menu and keystone.

2. Zoom Lever – turning this left or right will change the zoom level.

3. Focus Ring – rotating this ring will focus the projected image to the screen.

4. Power socket – you will plug your power cord to this socket.

5. Zoom lens – Zoom in and out once the zoom level is adjusted.

6. Elevator foot – you can adjust the height or level of projection once this is adjusted.

7. Elevator button – Before adjusting the elevator foot you have to press this button.

8. Infrared receiver – receives infrared signal from the projector remote control.

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9. Connection ports –
lets you connect
your computer,
video player and
video camera by
using the available
connection ports.

10. Tilt adjusting feet –
lets you fine tune
the display angle
by adjusting this
tilt adjusting feet.

Back Part of the LCD Projector

Control buttons

Here are some common command buttons that you can see on multimedia projectors.

11. Power Standby Button – power ON/OFF the projector

12. Source Button - press "Source" to choose computer, video or SVideo as input source.

13. Menu – press "Menu" to launch the on-screen-display (OSD) menu. To exit the OSD press menu again

14. Keystone button – press this button to adjust image distortion cause by tilting the projector.

15. Four Directional Select Keys - use to select items or make adjustment to your selection.

16. Enter Button – Confirm the selected changes for an item.

17. Re-sync – automatically synchronizes the projector to input source (for PC signal only)

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Self-Check 6.1-5

Directions: Read each statement or question carefully. Write the correct answer on your answer sheet.

_____1. A part of the projector that can be adjusted to obtain the level or height of projection.
        E. Elevator button
        F. Elevator foot
        G. Tilt adjusting feet
        H. Keystone button

_____2. Using your LCD projector, you are to project a PowerPoint presentation on the screen. Which source option will you select?
        A. Computer
        B. RGB
        C. S-Video
        D. Video

_____3. You are to adjust image distortion cause by tilting the projector, what button will press on your projector to correct this problem?
        A. Keystone
        B. Menu
        C. Re-sync
        D. Source

_____4. A part of the lens control that when turned left or right will change the size of the projected image.
        A. Focus ring
        B. Zoom lever
        C. Zoom lens
        D. Zoom ring

Answer Key No. 6.1-5

Multiple Choice

1. B
2. A
3. B
4. A

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Task Sheet No. 6.1-2
Connect Video Camera to LCD/DLP Projector

After performing this task sheet you must be able to:

1. Connect video camera to LCD/DLP projector
2. Display video via LCD/DLP projector

Equipment:

1. Video Camera
2. LCD/DLP projector
3. RCA cable/3.5 male jack

There are a variety of different video cameras available on the market, many of which have different recording functions. Some cameras record to a memory card or writable DVD, while others use a digital tape or an internal hard drive. No matter how your video camera records, you may want to simply display your video without editing it. Although you can do this on a television, a projector can provide a larger image.

This activity will familiarize you on how to display video image from a video camera using the LCD/DLP Projector.

Procedure:

Note: *Before making any connections between the video camera and LCD/DLP Projector make sure to power OFF both the equipment.*

1. Plug the 3.5mm male jack-to-RCA cable into the 3.5mm female jack of the video camera. Most cameras have this. The port on the video camera is the same size as a port for headphones. It allows you to connect the audio and video from the camera into a television, or in this case, the video projector.

   If the video camera doesn't have this 3.5 mm female port, then probably it uses RCA ports to connect to audio and video.   Plug the yellow RCA cable to the yellow RCA port of the video camera

2. Plug the yellow RCA cable into the yellow RCA port on the LCD/DLP projector.

3. Power ON the video camera.

4. Power ON the projector and press the "Menu or Source" button. Under menu you are going to find "Video In" (or something similar, depending on your make and model). Select this to display all of the possible options on your projector.

5. Scroll through the available selections until the content from the video camera is projected. From here you can begin to display what your video camera can capture.

6. Adjust the zoom control of the projector to desired size.

7. Adjust the focus control to make the displayed image clear and sharp.

8. Adjust the keystone control to remove keystone effect.

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Procedural Checklist 6.1-2
Connecting the Video Camera to LCD/DLP Projector

Trainees Name: _____

During the performance of the above mentioned task, did you follow the step by step procedure?

Procedure	YES	NO
1. Ensure that the video camera and LCD/DLP projector are power OFF.		
2. Plug the 3.5mm male jack-to-RCA cable into the 3.5mm female jack of the video camera or Plug the yellow RCA cable to the yellow RCA port of the video camera		
3. Plug the yellow RCA cable into the yellow RCA port on the LCD/DLP projector		
4. Power ON the video camera and select camera mode.		
5. Power ON the LCD/DLP projector and select source to be displayed.		
6. Adjust the zoom control of the projector to the desired display size.		
7. Adjust the focus control to make the projected image clear and sharp		
8. Adjust keystone control to correct keystone effect.		

Comments:

_____   _____

Name and Signature of Trainer/Facilitator   Date

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Information Sheet No. 6.1-6
The Public Address System

Objectives:

After reading this information you must be able to;

1. Describe a public address system
2. Identify and describe the components of a public address system

A public address or PA system is a combination of a set of audio equipment that allows broadcasts over a designated area. Often found in schools and office buildings, PA systems can be used for announcements or emergency information and provide a simple way to get information out quickly. PA systems can be basic or advanced, and can be adapted to fit a variety of needs.

Basic PA systems are comprised of loudspeakers placed in convenient locations around the broadcasting area, an amplifier to increase the sound, and a mixer, which allows variation in sound levels. The user speaks into a microphone, and the sound is transmitted through connected cables to the area surrounding the speakers.

Components of a Public Address System

Amplifier

When most users think of a sound system, they think of the visible endpoints: microphone or the loudspeaker. But neither of these passive components can create any sound without active components between them. Microphone signals require a preamp, signal processing, and amplification before the loudspeaker can do its job.

Amplifier

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Amplifiers are most commonly used for smaller venues such as clubs, coffee houses, and even school-multipurpose rooms. But they are equally useful in any building where a sound system might be temporarily set up in different rooms (or outdoors) on different days. In some cases, portable amplifiers are even permanently installed, despite their ultra-portable nature.

Microphone

A device that converts sound waves into analogous electrical waves. Usually called a "mike," it contains a flexible diaphragm composed of film or foil that vibrates as it makes contact with the sound. The diaphragm movement modulates an electrical current by various methods.
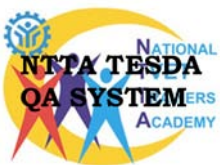
Since the demonstrator keep moving and both his/her hands are used in performing the task, the best type of microphone that can be used for this activity is wired or wireless microphone (lapel). It can be clipped on presenters' cloth near the neck or the headset design that can be placed on presenters head.

Speakers

Speakers convert electrical energy into sound pressure waves. Speakers are the last device in the sound system chain over which the sound designer has full control. With the exception of room characteristics and acoustic treatment, once the sound wave leaves the speaker cabinet, it's all up to the audience to actually *listen,* and it is up to the designer to properly utilize speaker equipment to provide an even listening pattern to as much of the venue as is humanly and technologically possible.

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Sound Mixer

A *sound mixer* is a device which takes two or more audio signals, mixes them together and provides one or more output signals. The diagram on the right shows a simple mixer with six inputs and two outputs.

Mixers allow you to adjust levels, enhance sound with equalization and effects, create monitor feeds, record various mixes, etc.

Mixers come in a wide variety of sizes and designs, from small portable units to massive studio consoles. The term *mixer* can refer to any type of sound mixer; the terms *sound desk* and *sound console* refer to mixers which sit on a desk surface as in a studio setting.

Sound mixers can look very intimidating to the newbie because they have so many buttons and other controls. However, once you understand how they work you realize that many of these controls are duplicated and it's not as difficult as it first seems.

Since mixers can be of great help in enhancing the audio output in the public address system, this can be optional equipment for this activity.

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Self-Check No. 6.1-6

Multiple Choice

Directions: Read each statement or question carefully. Select the correct letter of the answer and write it on your answer sheet.

_____1. A device that allow you to adjust levels, enhance sound with equalization and effects, create monitor feeds, record various mixes, etc.
- A. Amplifier
- B. Microphone
- C. Sound Mixers
- D. Speakers

_____2. A device that converts sound waves into analogous electrical waves.
- A. Amplifier
- B. Microphone
- C. Sound Mixers
- D. Speakers

_____3. An active device between the microphone and speakers.
- A. Amplifier
- B. Microphone
- C. Sound Mixers
- D. Speakers

_____4. A device that convert electrical energy into sound pressure waves.
- A. Amplifier
- B. Microphone
- C. Sound Mixers
- D. Speakers

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Answer Key 6-1-6

1. C
2. B
3. A
4. D

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Information Sheet No. 6.1-7
Major Parts of the Amplifier

Objectives

After reading this information sheet you must be able to:

1. Identify the parts of the amplifier and functions of each part.

We have learned that without the amplifier we cannot hear a sound coming from the microphone or any input source such as CD/DVD.

This is important equipment in the public address system and order to use it properly you must know the major parts of the amplifier as well as their functions.
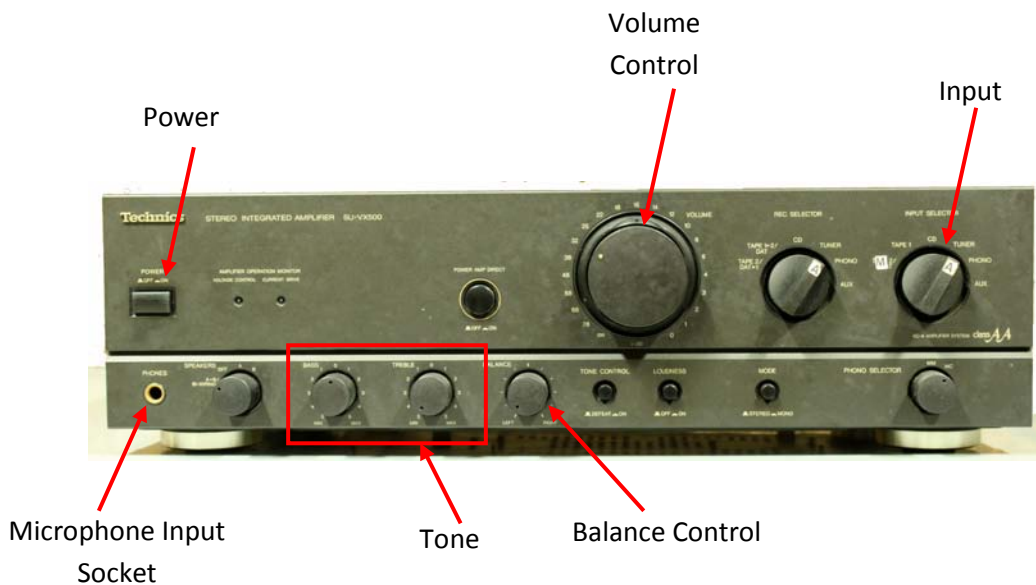
Amplifiers Front Panel

Volume Control

Volume controls on an amplifier are basically just small potentiometers (variable resistors) that allow you to adjust the incoming signal to the amplifier so the amplifier works well with your desired sound level.

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Input Selector

Input selector lets you select the input device such as CD/DVD, audio tape, tuner and auxiliary input such as audio.

Power Button

Power button lets you power ON the amplifier.

Tone Control Buttons

These are general tone controls, treble and bass. This runs the bass amp all the way, and run the treble off or on.

Balance Control

This control is used to adjust the left and right volume balance.

Microphone Input Socket

You connect the microphone 6.5 male jack on this input socket.
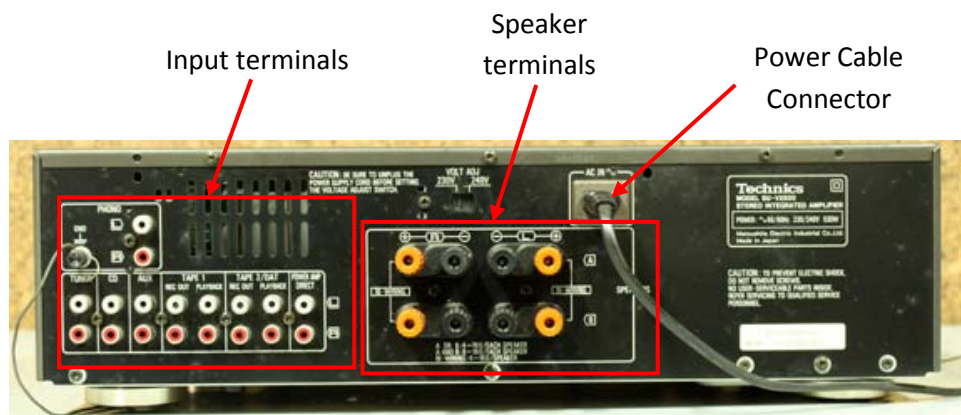
Back Panel

Input Terminals

Make connections to input components such as turn tables, tuner, CD/DVD and auxiliary using the RCA audio cable connectors.

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Stereo connection cable   White (L) ◁▭
Red (R) ◁▭
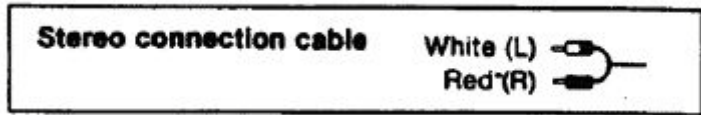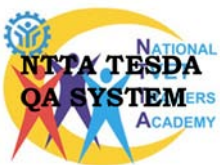
Speaker terminals

Make connections to speakers using speaker cords.

Power supply connector

Connects to AC power supply.

Self-Check No. 6.1-7

Multiple Choice

Directions: Read each statement or question carefully. Select the correct letter of the answer and write it on your answer sheet.

_____1. A control that allows you to adjust the incoming signal to the amplifier so the amplifier works well with your desired sound level.
   A. Balance control

   B. Input selector

   C. Tone control

   D. Volume control

_____2. A control that allows you to adjust the left and right volume output.
   A. Balance control

   B. Input selector

   C. Tone control

   D. Volume control

_____3. This control lets you select the input device such as CD/DVD, audio tape, tuner and auxiliary input such as microphone
   A. Balance control

   B. Input selector

   C. Tone control

   D. Volume control

_____4. A terminal that lets you connect input devices using RCA cable connectors.
   A. Input selector

   B. Input terminal

   C. Microphone input socket

   D. Speaker terminal

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Answer Key No. 6.1-7

1. D
2. A
3. B
4. C

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Task Sheet No. 6.1-3
Set-up Public Address System

Performance Objective:

      Given an amplifier, microphone, speaker and mixer(optional) you are to setup the public address system following the procedure listed below.

  Procedure:

      Note: *Before making any connections to the amplifier make sure to turn power OFF and set all control knobs to zero.*

1. Firstly, make sure all plugs are removed from sockets and power is off.

2. Plug the end of the microphone cord into the input socket of the amplifier.

3. Plug one end of the speaker cable into the output socket of the amplifier. The speaker outputs are frequently found at the back of an amplifier.

4. Plug the other end of the speaker cable into the input socket on the rear of the speaker.

5. Repeat steps 3 and 4 with the speaker cable for the additional speaker.

6. Plug the amplifier into the power outlet.

7. Power ON the amplifier.

Procedural Checklist

Setting-up the Public Address System

Trainees Name: _____
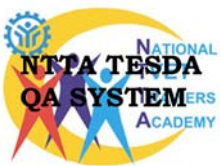
During the performance of the above mentioned task, did you follow the step by step procedure?

Procedure	YES	NO
1. Make sure to turn power OFF and set all control knobs to zero of the amplifier.		
1. Plug the end of the microphone cord into the input socket of the amplifier.		
2. Plug one end of the speaker cable into the output socket of the amplifier. The speaker outputs are frequently found at the back of an amplifier		
3. Plug the other end of the speaker cable into the input socket on the rear of the speaker.		
4. Repeat steps 3 and 4 with the speaker cable for the additional speaker.		
5. Plug the amplifier into the power outlet.		
6. Power ON the amplifier.		

For satisfactory achievement, all items should receive a YES response.

Comment:

Trainer's Name and Signature: _____

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Information Sheet No. 6.1-8

Techniques in Demonstrating in Front of the Video Camera

Learning Objectives:

After reading this information sheet you must be able to:

1. Explain the things to be prepared before demonstrating in front of a video camera.
2. Identify the techniques in demonstrating in front of the video camera.

Techniques in Demonstrating in Front of the Video Camera.

Preparing to film

The opportunity to film a trainer before a live audience provides a natural setting and spontaneous, vigorous interactions. Particularly where you lack the budget to film in a dedicated studio, this represents a viable option. Before filming the training, carefully consider the equipment, the location for the training, the trainer, and the students.

Equipment

Although you can record video with inexpensive equipment, the quality will be noticeably amateurish and you'll have little room for error when it comes time to correct problems with the video or sound. The video cameras should be of at least "prosumer" quality (intermediate between professional and consumer quality); ideally, use professional equipment. Better cameras typically have three CCD sensors versus the one sensor on typical consumer cameras. Although the resolution is similar, the three-CCD cameras provide more realistic color.

Digital video cameras that record onto mini-DV cassettes now offer quality equal to that of more traditional cameras, but eliminate the conversion from analog (film) to digital; thus, they

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both speed the transfer of footage to a computer for editing and eliminate quality loss due to format conversions.

Smooth zooms and pans are more difficult than they might seem, and require considerable practice. This is particularly true if, as with many cameras, the manual zoom and pan are too fast. The camera operator should be very well versed in zooming, panning and tilting the video camera.

Never rely on the camera's built-in microphone. Though suitable for home movies, this microphone provides noticeably lower quality than a standalone prosumer-quality model, and more often has obstacles or participants between it and the speaker. Thus, it's much more likely to produce inadequate recordings of the speaker and distracting background noise. To capture the speaker's voice, use a lapel microphone; headgear microphones also work, but may present an unprofessional image.

Location

Choose a suitable location for filming. If you aren't using a studio, the location should be visually, sonically, and logistically suitable. An ideal location provides a single type of ambient light, since a mix of lighting leads to unpredictable variations in brightness during a long session. Artificial lighting is preferable because it remains constant. Natural lighting provides more natural colors, but light intensities can vary excessively. In some cases, it may be possible to install daylight-balanced ("full spectrum") bulbs. Whichever light you choose, consult your camera manual to see whether there's an optimal setting for that type of light.

In terms of sound, make sure that the room doesn't create excessive echo; echoes can be very difficult to remove during editing, and may even force you to re-record segments of the speech. Sometimes you can hang blankets outside the frame or rent large potted plants to diminish echoes, but it's better to avoid them in the first place.

The presenter and presentation
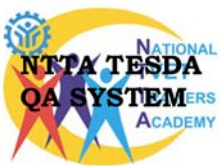
Because videos should support self-learning, in short sessions tailored to the student's schedule, plan the video as a series of modules that can be viewed sequentially. To facilitate this approach, ask the speaker to structure the presentation somewhat more than might otherwise be the case. Breaking the presentation

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into clear modules lets you design the video around the modules rather than creating artificial breaks that leave "visible seams".

Speakers should wear solid-colored clothing or an understated pattern that stands out from their background. They should avoid pinstripes and other geometrical patterns that can cause moirés. With some cameras, bright colors may also "bleed" (create visible fringes) or reflect too much light, so understated matte colors are preferable. To spot any problems before they're preserved forever on film, create a test film before the actual training session and change the speaker's wardrobe if necessary.

1. Start the demonstration by explaining what the trainees/student will learn in the demonstration. Use wide shot (WS) or Mid shot (MS).

2. Introduce one by one the equipment, tools and materials to be used. Use Cut-in shot.

3. Perform your demonstration making sure that the step-by-step procedure can be captured by the camera. Make a close up shot of the demonstration to show the detailed video of the procedure.

4. After presenting the procedure present a summary of the demonstration. Wide Shot (WS) or Mid-Shot

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Self-Check 6.1-8

True or False

Read the statement carefully; write T if the statement is correct and F if the statement is false. Write your answer on the space provided in each number.

_____1. Speakers or demonstrators should wear pinstripes or other geometrical pattern clothing during actual video shooting.

_____2. It is a good practice to create a test film to spot any problem before the actual video shooting.

_____3. When choosing location for demonstrations shooting, make sure that it create excessive echo.

_____4. The demonstrator must give a summary of the task during the start of demonstration.

_____5. It is an acceptable practice to rely on video camera built-in microphone.

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Answer Key 6.1-8

1. F
2. T
3. F
4. F
5. F

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Job Sheet No. 6.1-1

Present a Lesson Through Direct Video Footage/Capture

Performance Objectives:

Given a Video Camera Recorder, LCD/DLP projector, public address system, RCA cable and a video cassette you are to present a demonstration lesson in front of a video camera within 15 minutes.

Note: *Prepare the needed tools, equipment and supplies that you will use for the demonstration.*

Procedure:

1. Set-up the video camera recorder, mixer amplifier and LCD projector.

2. Prepare the needed tools, equipment and consumables to be used for demonstration

3. Shoot/record video of the demonstration.

4. Store the equipment, tools and supplies.

Performance Checklist No. 6.1-1

Presenting a Demonstration through Direct Video Footage/Capture

Trainee's Name: _____ Date: _____

During the performance of the activity did the trainee perform according to the required criteria?

Criteria	YES	NO
Inspected equipment for safe working condition and normal operation in-line with manufacturers users guide.		
Performed set-up of equipment in accordance with the connection guide and presentation requirements		
Operated equipment based on presentation requirements and operation manual.		
Executed presentation of lesson through direct video footage/capture and in-line with the session plan		
Stored Equipment through in accordance with standard operating procedure.		

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LEARNING OUTCOME SUMMARY

Learning Outcome 2	Present lesson via film viewing method

Contents:

1. The VCD/DVD Player
2. Connect VCD/DVD Player to LCD/DLP Projector
3. Operate a VCD/DVD Player
4. Techniques in Effective Utilization of Videos
5. Facilitate Training Using VCD/DVD and LCD/DLP Projector

Assessment Criteria:

1. Equipments are inspected for safe working condition and normal operation in-line with manufacturer's user guide.

2. Set-up of equipment is performed in accordance with connection guide, safety practices and presentation requirements.

3. Equipment is operated based on presentation requirements and operation manual.

4. Learners are oriented prior to film viewing in-line with the expected outcome of the lesson.

5. Learners are oriented prior to video viewing in-line with the expected outcome of the lesson

6. Strategies to ensure that the learner will learn important information from the movie are implemented in-line with session plan.

7. Equipment is stored in accordance with standard operating procedure.

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Conditions:

Trainees must be provided with following:

1. Electronic Media Equipment

    - Player (VHS/VCD/DVD)

    - Video Monitor/LCD Projector

    - P/A Systems (including Audio Mixers/ Audio Amplifies/ Microphones/ Speaker System)

2. Equipment guide and user manuals

3. Interconnection guide

4. Connection cables

5. Training materials:

Assessment Method:

1. Written Test

2. Demonstration/Questioning

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LEARNING EXPERIENCES

Learning Outcome 2: Present lesson via film viewing method (video)	
Learning Activities	Special Instructions
Read Information Sheet No. 6.2-1: The DVD/VCD Player	
Answer Self-Check 6.2-1	
Check your answer to Answer Key 6.2-1	
Perform Task Sheet No.6.2-1: Connect LCD/LDP Projector to VCD/DVD Player	Ask you trainer for the AV equipment that you will use for this activity. Your trainer will evaluate your performance using Procedural Checklist.
Perform Task Sheet No.6.2-2: Connect LCD/LDP Projector to VCD/DVD Player	Ask you trainer for the AV equipment that you will use for this activity. Your trainer will evaluate your performance using Procedural Checklist
Read Information Sheet No. 6.2-2: Techniques in Effective Utilization of Videos	
Answer Self-Check 6.2-2	
Check your answer to Answer Key 6.2-2	

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Perform Job Sheet 6.2-1: Facilitate Training Using VCD/DVD Player and LCD/DLP Projector	Ask you trainer for the AV equipment that you will use for this activity. Your trainer will evaluate your performance using Performance Checklist
To check your skills, knowledge and attitude in facilitating training using VCD/DVD and LCD/DLP projector, you will present a 15-minute lesson using the above mentioned AV equipment.	

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Information Sheet No. 6.2-1

The VCD/DVD Player

Objectives:

After reading this information sheet you must be able to:

1. describe a VCD/DVD player;

2. identify the different component parts of a VCD/DVD player.

A CD/DVD player is a device that plays discs produced under both the DVD-Video and DVD-Audio technical standards, two different and incompatible standards. Additionally, most DVD players allow users to play audio CDs and Video CDs (VCD). A few include a home cinema decoder (i.e. Dolby Digital, Digital Theater Systems (DTS)). Some newer devices also play videos in the MPEG-4 ASP video compression format (such as DivX) popular in the Internet.

Components of a CD/DVD Player

The components of a DVD machine are typically manufactured by separate companies and then assembled by the DVD manufacturer. The production of the component parts is a highly specialized process, and only a few companies are equipped to supply the entire industry. The main components include the optical system assembly, internal electronic circuit board and the disk drive mechanism.

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A DVD player is composed of sophisticated electronics, including a disc drive mechanism, a printed circuit board, and an optical system assembly. It consists of a spindle that holds the disc and, a motor that spins it. The circuit board contains all of the electronic components, which help convert the data being read into a usable format. The optical system assembly is the part of the DVD that reads the data from the disc and transmits it to be converted into binary code.

Optical system

The optical system is made up of a laser, photo detector, prism, mirrors, and lenses. The laser and photo detector are installed on a plastic housing, and the other components are placed in specific places. Great care is taken in the positioning of each of these pieces because without proper alignment, the system will not perform properly. Electrical connections are attached and the optical system is then ready to be attached to the disc drive mechanism.

Disk drive mechanism

The optical system is attached to the motor that will drive it. This in turn is connected to the other principal parts of the disc drive including the loading tray (if present) and the spindle motor. Other gears and belts are attached and the entire assembly is placed in the main body.

Internal electronics

The electronic components of the DVD machine are sophisticated and use the latest in electronic processing technology. The circuit board is produced much like that of other electronic equipment.

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Self-Check No. 6.2-1

True or False

Read the statement carefully; write T if the statement is correct and F if the statement is false. Write your answer on the space provided in each number.

_____ 1. The optical system is made up of a laser, photo detector, prism, mirrors, and lenses.

_____2. The internal electronics reads the data from the disc and transmits it to be converted into binary code.

_____3. The disk drive mechanism is compose of spindle that holds the disc and, a motor that spins it.

_____ 4. The electronic circuit board contains all of the electronic components, which help convert the data being read into a usable format.

_____5. The optical system is connected to the disk drive mechanism.

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Answer Key 6.2-1

1. T
2. F
3. T
4. T
5. T

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Task Sheet No. 6.2-1

Connect VCD/DVD Player to LCD/DLP Projector and Amplifier

Performance Objectives:

Given a VCD/DVD player, LCD/DLP projector, amplifier and RCA cable you must be able to connect them following the step by step procedure.

After learning all about the VCD/DVD player, you will learn another task that is important in presenting a lesson through the use of video. You must know how to connect this equipment properly.

Procedure:

1. Place the LCD/DLP projector and VCD/DVD player on a stable flat surface at about 5 feet away from the projection screen.

2. Locate the Video Out RCA connector, and the Video In RCA connector of the LCD/DLP projector

VCD Video Out   LCD/DLP Video

3. Connect one end of the RCA cable (yellow) to the video out of the VCD/DVD player and the other end to the LCD/DLP Video In cable.

| RCA Cable | RCA Cable to VCD/DVD Video OUT | RCA Cable to LCD/DLP Video IN |

4. Switch ON the VCD/DVD player and the LCD/DLP Projector.

LCD projector can automatically detect VCD/DVD player. If in case the projector cannot display video, you can press the SOURCE button of the LCD/DLP projector and select video as source.

To include audio on your video connect the RCA (Red and White) connector to audio-in of the amplifier.

5. After the video presentation, eject VCD from the VCD player, and then turn it off.

6. Switch OFF LCD/DLP projector; wait for the projector to cool down before unplugging.

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Procedural Checklist
Connecting VCD/DVD Player to LCD Projector and Amplifier

Trainees Name: _____

During the performance of the above mentioned task, did you follow the step by step procedure?

Procedure	YES	NO
1. Place the LCD/DLP projector and VCD/DVD player on a stable flat surface at about 5 feet away from the projection screen.		
2. Locate the Video Out RCA connector, and the Video In RCA connector of the LCD/DLP projector.		
3. Connect one end of the RCA cable (yellow) to the video out of the VCD/DVD player and the other end to the LCD/DLP Video In cable.		
4. Switch ON the VCD/DVD player and the LCD/DLP Projector.		
5. After the video presentation, eject VCD from the VCD player, and then turn it off.		
6. Switch OFF LCD/DLP projector; wait for the projector to cool down before unplugging.		

For satisfactory achievement, all items should receive a YES response.

Comment:

Trainer's Name and Signature: _____

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Task Sheet No. 6.2-2
Operate a VCD/DVD Player

Performance Objective:

Given a VCD/DVD player with remote control, multimedia projector, amplifier with speaker, RCA cable and video disc (VCD/DVD) you must be able to operate a VCD/DVD payer following the listed procedure.

After learning to connect the video player to the multimedia projector and amplifier, you will learn now to play a video disc on to a video player, the video must be displayed from LCD/DLP projector and the audio of the video from the amplifier and speaker.

Procedure in Playing Video Disc

1. Plug the video player, LCD/DLP projector and amplifier power cords to an AC outlet.

2. Power ON the video player, LCD/DLP projector and amplifier.

3. Press the OPEN button of the video player and place video disc on its tray.

Playback side facing down
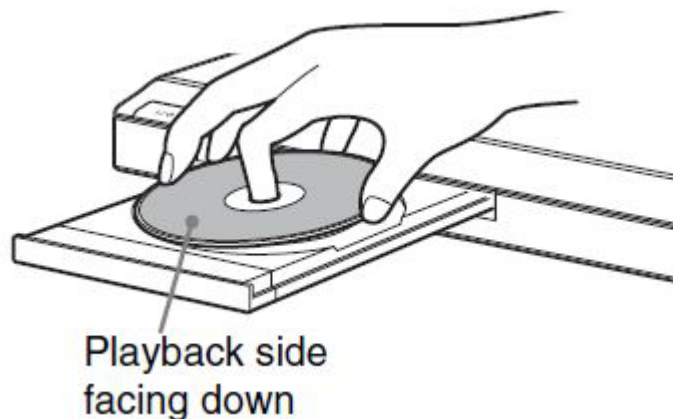
4. Close the disk tray by pressing again the OPEN button. The disk may automatically play the video.

5. Adjust the volume of your amplifier.

Pausing and stopping video player

1. Press the PAUSE button of the remote control to temporarily stop the video from playing.

2. To resume playing, press the PAUSE button again.

3. To stop the video being played, press the STOP button.

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Procedural Checklist
Operating a VCD/DVD Player

Trainees Name: _____
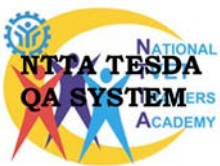
During the performance of the above mentioned task, did you follow the step by step procedure?

Procedure	YES	NO
1. Plug the video player, LCD/DLP projector and amplifier power cords to an AC outlet.		
2. Power ON the video player, LCD/DLP projector and amplifier.		
3. Press the OPEN button of the video player and place video disc on its tray		
4. Close the disk tray by pressing again the OPEN button. The disk may automatically play the video.		
5. Adjust the volume of your amplifier.		
6. Press the PAUSE button of the remote control to temporarily stop the video from playing.		
7. To resume playing, press the PAUSE button again.		
8. To stop the video being played, press the STOP button.		

For satisfactory achievement, all items should receive a YES response.

Comment:

Trainer's Name and Signature: _____

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Information Sheet No. 6.2-2
Techniques in Effective Utilization of Videos

Objectives:

After reading this Information Sheet, you must be able to:

1. identify the practices in training using videos;

2. identify the advantages of using videos in training;

3. identify the disadvantages of using videos in training.

In the absence of field, classroom and hands on training, video becomes an important learning tool. We know from research that people tend to remember:

10% of what they read
20% of what they hear
30% of what they see
50% of what they hear and see.

What's new to this research is that, we will remember 70%-90% of what we see, hear and experience. The experience element does not always mean hands-on because today's visual learner gets almost the same experience from a well-done training or demonstration video as they do from hands-on work.

How and When to Use Video

Video can be used in a variety of ways to enhance any training topic. Here are some examples of best practices for training use.

- Always preview video in advance to make it easier to connect to training objectives.

- When possible, show short clips from longer programs to either introduce or reinforce discussion.

- Set the learning condition for attentive viewing by giving trainees active assignments before a clip to encourage their attention and post discussion.

- Use the pause button to promote interactivity between yourself,

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the video and the trainees.

Where appropriate, use the pause button to freeze on specific frame of video to encourage the trainees to search for more details.

Lead-ins to video segments could include:

- Listen to this term……
- Think of similar examples……
- Watch for….
- List the things in this video that ….

After the video:

- Check for understanding
- Reinforce a point
- Connect to real examples
- Ask, What did you see, etc…

Advantages of Videos

- It can easily be duplicated.
- It is reusable and portable.
- It can be used by the trainees at their convenience.
- It can save the travel expenses and time.
- It can bring productivity savings.

Disadvantages of Video

- Information may not be specific to the training but it must appeal to large audience.
- Trainees control the process of learning, which can sometimes lead to leniency on the part of trainees causing waste of resources, time, and money.
- Learning at home can bring many distractions, which in turn, may result to the trainee's stopping the video anytime to give way to his personal work.
- Trainee may also fast-forward many parts, if he finds the video boring.

Therefore, evaluating learning becomes very important when this type of training technique is used.

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Self-Check NO. 6.2-2

A. Enumerate the practices in training using video.

B. List down the advantages in using videos in training.

C. List down the disadvantages of videos in training.

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Answer Key No. 6.2-2

1. Enumerate the practices in training using video.
   - Always preview video in advance to make it easier to connect to training objectives.

   - When possible, show short clips from longer programs to either introduce or reinforce discussion.

   - Set the learning condition for attentive viewing by giving trainees active assignments before a clip to encourage their attention and post discussion.

   - Use the pause button to promote interactivity between yourself, the video and the trainees

   - Check trainees understanding of the video presented.

2. List down the advantages of using videos in training.
   - It can easily be duplicated.

   - It is reusable and portable.

   - It can be used by the trainees at their convenience.

   - It can save the travel expenses and time.

   - It can bring productivity savings.

3. List down the disadvantages of videos in training
   - Information may not be specific to the training but it must appeal to large audience.

   - Trainees control the process of learning, which can sometimes lead to leniency on the part of trainees causing waste of resources, time, and money.

   - Learning at homes can bring many distractions, which in turn may result to the trainee stopping the video anytime in favour of his personal work.

   - Trainee may also fast-forward many parts, if he finds the video boring.

Job Sheet No. 6.2-2

Facilitate Training using VCD/DVD and LCD/DLP Projector

Objectives:

Given a VCD/DVD player, LCD/DLP projector, amplifier, speaker and cables you must present a lesson in 15 minutes following techniques in effective utilization of video viewing method in teaching

Procedure:

1. Set up LCD/DLP projector and VCD/DVD player.
2. Present an information lesson using the LCD/DLP projector and VCD/DVD player.

Evaluation:

The trainer's observation must be based on the following criteria:

1. All steps in connecting LCD/DLP projector and video player were completed in correct sequence.
2. All safety precautions in operating LCD/DLP projector were followed.
3. Training practices in using video were followed.

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Performance Checklist No. 6.2-2

Facilitate Training Using VCD/DVD and LCD/DLP Projector
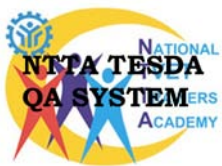
Trainee's Name: _____ Date: _____

During the performance of the activity did the trainee perform according to the required criteria?

Criteria	YES	NO
Placed LCD/DLP projector and VCD/DVD player on a stable flat surface		
Located RCA video OUT of VCD/DVD projector		
Located RCA video IN of LCD/DVD projector		
Connected RCA Video cable to VCD/DVD player video OUT to LCD/DLP projector video IN.		
Switched ON the LCD/DLP projector and VCD/DVD player		
Selected source from LCD/DLP projector		
Displayed the video from LCD/DLP projector		
Adjusted focus and keystone of projector		
Used PAUSE button for interactivity.		
Checked trainees understanding of the video		

For satisfactory achievement, all items should receive a YES response.

Comment:

Trainer's Name and Signature: _____

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LEARNING OUTCOME SUMMARY

Learning Outcome 3: Utilize computer and multimedia technology to present a lesson

Contents:
1. Equipments are inspected for safe working condition and normal operation in-line with manufacturer's user guide.

2. Set-up of equipment is performed in accordance with connection guide, safety practices and presentation requirements.

3. Equipment is operated based on presentation requirements and operation manual.

4. Teacher-centered presentation of a lesson is executed using a computer and in-line with session plan.

5. Learner-centered presentation of a lesson is executed using a computer and in-line with session plan.

6. Strategies to ensure that the learner will learn important information from the movie are implemented in-line with session plan.

7. Equipment is stored in accordance with standard operating procedure.

Assessment Criteria:

1. Procedure in interconnecting Player(VHS/VCD/DVD), P/A system and Video Monitor/LCD Projector

2. Basic maintenance of personal computer

3. Psychological perception in learning

4. Techniques in effective presentation using digital slides

5. Techniques in effective utilization of computer aided learning resources

6. Techniques in utilizing world wide web in teaching

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Conditions:

Trainees must be provided with following:

1. Electronic Media Equipment

   - Personal Computer

   - Video Monitor/LCD Projector

   - P/A Systems (including Audio Mixers/ Audio Amplifies/ Microphones/ Speaker System)

2. Equipment guide and user manuals

3. Interconnection guide

4. Connection cables

5. Training materials:

   - Information Sheet

   - Self-Checks

   - Model answers

   - Task Sheets

   - Inspection Checklist

Assessment Method:

1. Written Test

2. Demonstration/Questioning

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LEARNING EXPERIENCES

Learning Outcome 3: Utilize computer and multimedia technology to present a lesson	
Learning Activities	**Special Instructions**
Read Information Sheet No. 6.3-1: The Personal Computer	
Answer Self Check 6.3-1	
Check your answer to Answer Key 6.3-1	
Perform Task Sheet No.6.3-1: Connect LCD Projector to Personal Computer	Ask you trainer for the AV equipment that you will use for this activity. Your trainer will evaluate your performance using Procedural Checklist
Read Information Sheet No. 6.3-2: LCD Projector Presentation Skills	
Answer Self Check 6.3-2	
Check your answer to Answer Key 6.3-2	
Read Information Sheet No. 6.3-3 Maintenance Activity for a Personal Computer	
Answer Self Check 6.3-3	
Check your answer to Answer Key 6.3-3	
Read Information Sheet No. 6.3-4 Techniques in Utilizing World Wide Web in Teaching	
Answer Self Check 6.3-4	

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Check your answer to Answer Key 6.3-4	
Read Information Sheet No. 6.3-5 Techniques in Effective Utilization of Computer-Based Training	
Answer Self Check 6.3-5	
Check your answer to Answer Key 6.3-5	
Perform Job Sheet 6.2-1: Facilitate Training Using Personal Computer and LCD/DLP Projector

To check your skills, knowledge and attitude in facilitating training using personal computer and LCD/DLP projector, you will present a 10-minute information lesson using the above mentioned AV equipment. | Ask for a personal computer and LCD/DLP projector for this activity. |

Information Sheet No. 6.3-1
The Personal Computer

Learning Objectives:

After reading this information sheet, you must be able to:

1. describe a personal computer;
2. identify the different types of personal computer;
3. identify the input, output and storage devices.

A personal computer (PC) is any general-purpose computer whose size, capabilities, and original sales price make it useful for individuals, and which is intended to be operated directly by an end user, with no intervening computer operator.

Types of Personal Computer

A personal computer may be a desktop computer, a laptop, a tablet PC, or a handheld PC (also called a *palmtop*).

| Desktop PC | Laptop | Tablet PC | Handheld PC (PDA) |
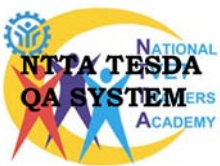
A PC may be used at home, or may be found in an office. Personal computers can be connected to a local area network (LAN) either by a cable or a wireless connection.

The Components of a Personal Computer

The four basic tasks of a computer are to: receive information; process information; store information and send out information. By information we mean text, numbers, pictures, sounds, even electrical voltages. It is the combination of these four tasks with the aid of programs

![NTTA TESDA QA SYSTEM ACADEMY logo]	**CBLMs on Trainers Methodology Level I Utilizing Electronic Media in Facilitating Training**	Date Developed: July 2010 Date Revised: March 2012	Document No.:	
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which allow computers to be so versatile.

Input Devices

Input devices are any electronic equipment connected to a computer that produce input signals.

- Keyboard - The keyboard is a way to input letters or numbers into different applications or programs. A keyboard has, also, special keys that help operate the computer.

- Mouse - The mouse is used to open and close files, navigate web sites, and click on a lot of commands (to tell the computer what to do) when using different applications. It is considered as a pointing device.

- Camera - Most cameras are used during live conversations. The camera transmits a picture from one computer to another, or can be used to record a short video.

- Drawing Tablet - A drawing tablet is similar to a white board, except that you use a special pen to write on it and is connected to the computer. Once connected, the word or image you draw can be saved on the computer.

- Digital Camera - A digital camera can be used to take pictures. It can be hooked up to a computer so that pictures from the camera can be transferred to the computer. Some digital cameras hold a floppy disk which can be taken out of the camera and can be put directly into the computer.

Output Devices

A display device is an output equipment that visually conveys texts, graphics and video information.

- A monitor is an example of an output device that can be used to display text. It can also display graphics and video. It is similar to a television set that accepts video signals from a computer and displays information on its screen.

- A Liquid Crystal Display (LCD) projector uses its own light source to project what is displayed on the computer on a wall or projection screen. A digital light processing (DLP) projector uses tiny mirrors to reflect light which can be seen clearly in a well-lit room.

- A printer is an output device that prints text and graphics on a physical medium, such as paper or transparency film.
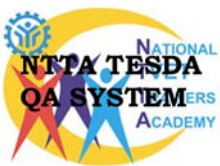
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- An audio output device produces music, speech, or other sounds. A pair of speakers is an audio output device that generates sound. The headphone is a pair of small speakers placed over the ears and plugged into a port on the sound card. A woofer or subwoofer is used to boost the low bass sound and is connected to the port on the sound card.

Storage devices

Information and documents are stored in computer storage so that it can be retrieved whenever they are needed later on. Computer storage is the storing of data in an electromagnetic form to be accessed to by a computer processor.

Types of Computer Storage

- Primary storage
- Secondary storage
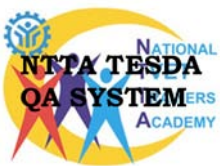
Primary Storage

Primary storage is the main memory in a computer. It stores data and programs that can be accessed to directly by the processor.

Types of Primary Storage

There are two types of primary storage: the RAM and the ROM.

Random Access Memory (RAM)	Read Only Memory (ROM)
RAM is an acronym for Random-Access Memory which means that the data and program can be read and written.	ROM is an acronym for Read-Only Memory. The data or program in ROM can only be read but cannot be written at all.
RAM stores data during and after processing. RAM is also known as a working memory.	ROM is another type of memory permanently stored inside the computer.

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The data in the RAM can be read(retrieved) or written (stored).	All the contents in the ROM can be accessed to and read but cannot be changed.
RAM is volatile which means that the programs and data in the RAM are lost when the computer is powered off.	ROM is non-volatile. It holds the programs and data when the computer is powered off.
A computer uses RAM to hold temporary instructions and data needed to complete tasks. This enables the CPU (Central Processing Unit) to access instructions and data stored in the memory very quickly	Programs in ROM have been pre-recorded. It can only be stored by the manufacturer once and it cannot be changed.

Secondary Storage

Secondary storage is another alternative storage to save your work and documents. It is very useful to store programs and data for future use.

It is non-volatile, which means that it does not need power to maintain the information stored in it. It will store the information until it is erased.

Types of Secondary Storage

Magnetic such as floppy disk

Optical such as CD-ROM

Flash memory such as pen drive, memory card and memory stick

Floppy disk
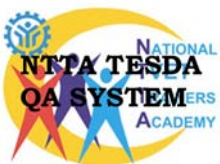
Hard Disk Drive (Local Drive)

Memory Stick

CD ROM

Self Check No. 6.3-1

Directions: Read carefully the statements or questions; choose the correct answer listed below. Write your answer on the space provider before each number.

_____1. An input device used to open and close files, navigate web sites, and click on a lot of commands (to tell the computer what to do) when using different applications.

    A. camera

    B. Drawing tablet

    C. Keyboard

    D. Mouse

_____2. An input device used to input letters or numbers into different applications or programs.

    A. camera

    B. Drawing tablet

    C. Keyboard

    D. Mouse

_____3. An output device that can be used to display text. It can also display graphics and video.

    E. Liquid crystal display

    F. Monitor

    G. Printer

    H. Speaker

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_____ 4. What do you call the primary storage that stores data during and after processing? It is also known as a working memory.

    A. CD-ROM

    B. Memory stick

    C. RAM

    D. ROM

_____ 5. An optical secondary storage.

    A. CD-ROM

    B. Memory stick

    C. RAM

    D. ROM

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Answer Key No. 6.1-2

1. D
2. C
3. B
4. C
5. A

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Task Sheet No. 6.3-1
Connect LCD/DLP Projector to a Personal Computer

Performance Objectives:

Given the a personal computer (laptop), LCD/DLP projector and a VGA cable you must be able to connect the LCD projector to a personal computer; and display computer images from LCD projectors, following the listed procedure.

You have learned all about the LCD/DLP on the first learning outcome of this module, and you have also learned the basics of computer on the first information sheet of this learning outcome. Your final activity for this module is to present a lesson using the computer and projection media, but before you can do that you have to learn how to connect the above mentioned equipment and that is what we will do for this activity.

Procedure in connecting the LCD/DLP Projector to a Personal Computer

1. Place the LCD/DVD Projector and Laptop on a stable flat surface.

2. Locate the VGA port on the Laptop. The VGA output connector/port is usually located at the back or side of the laptop. This is the same port which allows you to connect an external monitor/projector to the Computer (CPU).

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3. Locate the VGA connector on the LCD projector.
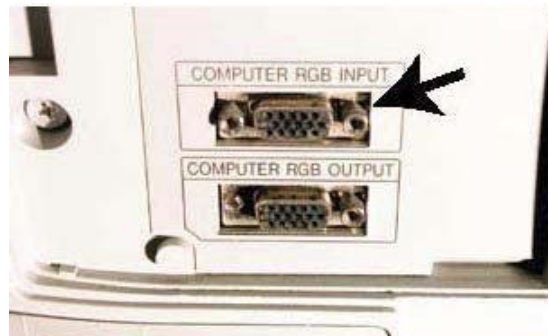
4. Use a VGA cable (a 15-pin male to male) to connect your computer to the LCD projector. Insert one end of the cable into the VGA connector (sometimes this connector is blue) at the back of your computer and do the same at the back of your LCD projector. If the LCD projector has more than one VGA connectors, choose the one that says something like "line in" or "in from the computer.

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5. Power on your laptop. Turn on the LCD projector. It may take a couple of minutes to warm up. Open the computer file or document you wish to display. When you are ready to project your image, press "Function" (Fn) plus "F4." This combination of keys sends your computer's display to the LCD projector.

If the above step doesn't work, try pressing the source button on your LCD projector. Select RGB or computer source to activate the projector.

Know some other features of your LCD projector. Most have a focus knob to make the picture clearer. If your image appears distorted (wider on one side than the other or small at the top, big at the bottom), adjust the keystone setting which helps to project a rectangular image. You can fix keystone distortion manually by moving the LCD projector to position it near the center of the screen at which it is aiming; or correct it using the menu command and accessing keystone.

Once finished with your presentation, turn off your LCD projector properly. Press the "off" button once, and a dialog box pops up asking if you are sure you want to turn it off. Press the "off" button again, and the machine powers down. Leave the machine plugged in until the cooling fan stops. Be careful when disconnecting VGA cables from the back of the projector and laptop, as the pins at the end of the cable are delicate.

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Procedural Checklist No. 6.2-1
Connecting Personal Computer to LCD/DLP Projector

Trainee's Name: _____ Date: _____

During the performance of the activity did the trainee follow the step by step procedure?

Procedure	YES	NO
1. Place LCD/DLP projector on a stable flat surface.		
2. Locate VGA port of the personal computer.		
3. Locate VGA port of the LCD/DLP projector.		
4. Use VGA cable to connect computer to LCD/DLP projector.		
5. Power ON laptop.		
6. Power ON LCD/DLP projector.		
7. Open computer file.		
8. Press computer combination keys to send display to projector.		
9. Adjust focus knob to make the picture clearer.		
10. Adjust keystone setting to avoid keystone distortion.		
11. Switch OFF both equipments after use.		
12. Unplug VGA cable carefully.		
13. Unplug power cable after used.		
14. Store equipment after use		

For satisfactory achievement, all items should receive a YES response

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Comment:

Trainer's Name and Signature: _____

Date: _____

Information Sheet No. 6.3-2
LCD/DLP Projector Presentation Skills

Learning Objectives:

After reading this information sheet, you must be able to:

1. explain the guidelines in using LCD projectors;
2. explain the guidelines in giving presentations.

After connecting the multi-media projector and the personal computer you will learn now the guidelines when using these equipments in presenting a lesson.

Here are some guidelines when using LCD projectors:

1. Read the LCD projector manual on its proper operation.

   Not all LCD projectors work the same way and each has its own unique operating requirements. Become very familiar with the projector BEFORE using it during your actual presentation. Make sure your computer can be properly interfaced with the LCD projector.

2. Practice setting the equipment up several times.

   Spend some time making sure you know how to properly set up the LCD projector with your computer and other computers. Set up the LCD projector in the actual presentation environment you will be using, if possible.

3. Set up well in advance.

   Allow yourself plenty of time to set up your computer and the LCD projector. Check any last minute details.

4. Check the LCD projector bulb life.

   LCD projector bulbs do have limited life. Some bulbs have shorter lives than others. Check and make sure the bulb you will be using is not close to the end of its life.
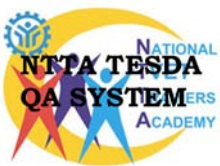
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5. Bring a spare bulb and cables.

   Always carry spare bulbs with you and make sure your know how to properly change the bulb. Also, remember, "Hot" glass looks like "Cold" glass; be careful and bring a towel or glove to use when changing the bulb. Practice changing the bulb during one of your practice sessions.

6. Check your presentation color combinations.

   Take some time to check out the actual presentation for the color combinations you will be using. Some colors and color combinations do not project well.

7. Check the font size you are using.

   Nothing is more frustrating to an audience than texts that cannot be easily seen or read. Make sure you are using the proper text size for the distance you will be projecting your slides. The rule of the thumb is that you should have no more than six lines of text per slide and no more than six word per line.

   As with any sophisticated piece of equipment, it is critical that you familiarize yourself with the proper set-up and operation of the equipment well, in advance of your actual presentation. Remember, the more technology you bring to your presentation, the more care and time you need to include during your preparation stage. If everything is well-planned, properly checked out and properly rehearsed with this new equipment, it can add a lot of excitement and life to your presentations.

Guidelines in giving presentations

   There are four things to remember during your presentation.

Presence

   As you get up to give your presentation, make a conscious effort to stand tall, take a deep breath and look as if you're going to enjoy being there.

Eye contact

   Make eye contact with the trainee in your audience in a friendly way. People respond much better when they think you are talking to them. In a small room, try to make eye contact with each person. In a larger hall, make eye contact with different groups in the audience.

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Voice

Speak slowly and clearly. Speak loudly enough, so everyone can hear. Remember to breathe slowly and deeply.

Move

You are allowed to move as you gave your presentation, but avoid pacing up and down or fiddling with your hands, spectacles or pen. Keep your hands out of your pockets and away from your face.

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Self-Check No. 6.3-2

True or False

Directions: Read carefully each statement, write T if the statement is correct and F if the statement is false. Write your answer on the space provided before each number.

_____1. When presenting it is good practice to fiddle with your pen or spectacle.

_____2. When giving presentation you should maintain eye to eye contact with your trainees.

_____3. As a trainer you should allow yourself plenty of time to set up your computer and the LCD projector before giving presentation.

_____4. All LCD/DLP projectors work the same and has its own unique operating requirements.

_____5. The trainer should speak fast and clearly, and should be loud enough to be heard by the trainees

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Answer Key 6.3-2

1. F
2. T
3. T
4. F
5. F

Information Sheet No. 6.3-3
Maintenance Activity for a Personal Computer

Learning Objective:

After going through this Information Sheet, you must be able to identify the different maintenance procedures for a personal computer.

Isn't it just great, you have just learned to connect your computer to multi-media projector and you are also equipped with the techniques in presenting a lesson using your personal computer and the multimedia projector. What if your personal computer started to show problems such as slowing and some applications seems to be none responding? This lesson will equip you how to keep your computer at its best by doing some maintenance activity.

Check your hard disk for bad sectors and errors

This is probably the most important job on the maintenance activity because Scandisk checks your hard drive for errors. If there is a problem with your hard drive, then, you are in trouble. It is the main component in your computer and stores all of your precious data and files. It is always best to perform this check before using the disk defragmenter as the disk defragmenter will not work when there are file errors or hard disk errors.

Here's how to maintain your hard drive and check for bad sectors and errors:

1. Go to the Start Menu and choose My Computer.
2. Right click on the drive you want to check. I always check C: drive as it is my main drive.
3. Choose Properties from the drop down menu.
4. Click on the Tools tab.
5. Here you can press check now to scan your hard disc for errors.
6. A box will appear with some choices. Choose to let Windows fix errors automatically.

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7. Then press start.

8. When it has finished scanning, a report will appear.

Defragment your computer

The Windows Disk defragmenter organizes files and data into areas that help the computer run smoothly. It moves the frequently used files to an easy access area and the least used files, the opposite. It also gathers fragmented files and groups them back together. You should defrag your computer every 10-15 days.

How to Defragment your computer:

1. Go to the Start Menu and choose My Computer.

2. Right click on the drive you want to check. I always check C: drive as it is my main drive.

3. Choose Properties from the drop down menu.

4. Click on the Tools tab.

5. Here you can click on Defragmentation to defrag your hard disc.

6. Then press defragment now.

Remove unwanted and junk files

Windows helps you get through your maintenance activity by providing system tools that help you clean your computer and keep it running smoothly. There are two main ways to delete files safely with the help of Windows.

Disk Cleanup: This will remove such files as temporary files, the recycle bin, compressed old files, offline WebPages, and downloaded program files.

To get there you can go to *my computer>right click* on the drive you want to clean>choose *properties*>then choose *disk cleanup.*

Delete browsing history: You will be amazed at how many files you collect when you browse the internet. Temporary internet files, cookies, history, form data, and passwords. To keep your computer running smoothly, you must regularly delete all of this junk. If you are a person that likes the computer filling in your passwords you should, probably, leave the cookies and the passwords.

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To get there go to *Control Panel* and *open Internet Options>* On the *General tab>*next to the heading *browsing history>*click on the *delete* button. This will take you to a menu like the screenshot
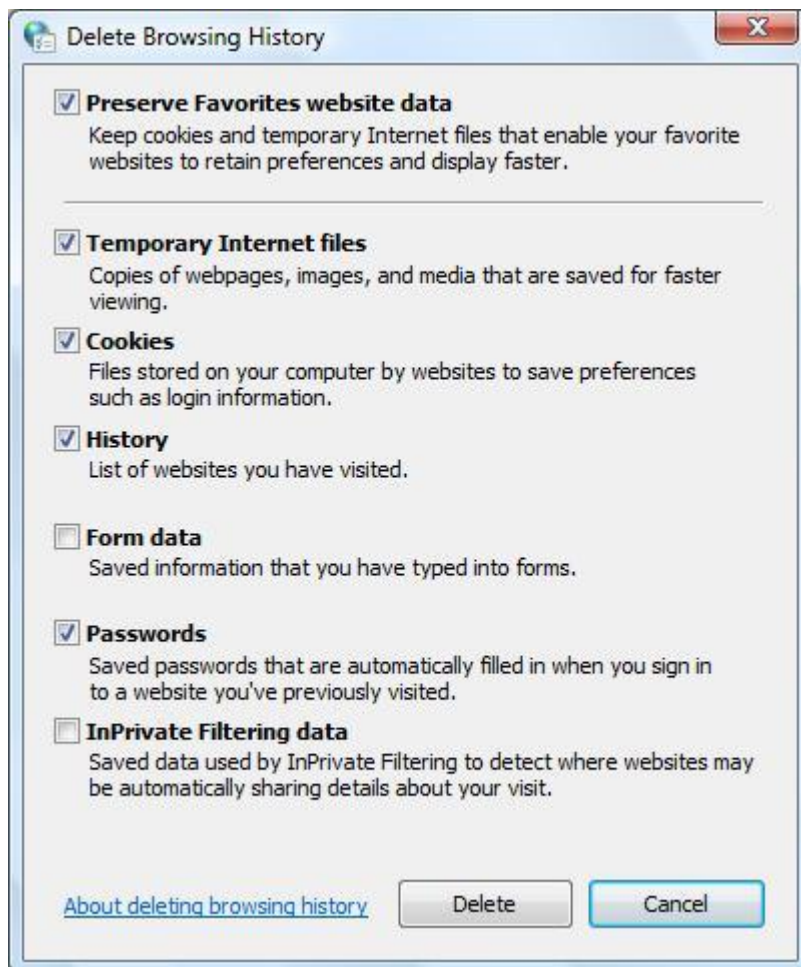
below. You can choose to delete all at the bottom or you can delete them individually.

Clean out your e-mail

This may be over done, however, if you delete an email in Outlook express, it then goes to the deleted folder. Then you have to delete it from there. Some programs then take that email to the recycle bin, where it has to be deleted again. It sounds crazy, but it does happen.

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Keep your programs under control

- Remove any program that you do not use or have a trial period that has expired. There is nothing worse than having a nagging message come up saying that your trial period is over. You are wasting your computer time and energy. There are two options here, delete the program or buy the full version.

- Keep up to date with Windows updates: Let Windows updates do its thing because it usually keeps your computer up to date with security breaches and bug fixes.

- Register your programs: Either register your programs or tick the box that says never show this window again. If you leave this unfinished it will be another process that is running in the background, slowing your computer down.

- **Don't install too many programs:** You only need one program to perform a certain task. You should not be having three different photo editing programs or 2 different video editing programs, for example. The less your computer has on it, the better it will run.

Have an external drive for instant backup

It doesn't just have to be an external hard drive, it could also be a USB flash drive, a re-writeable DVD disc, a spare hard drive installed in your computer, or even another computer altogether. If you instantly backup you files with another device, you will have less maintenance to do on your computer. You will not be clogging your computer up with files and data and if your computer crashes, your files will be safe.

Windows Vista and Windows Seven still have files that you need to backup; however, they both have an inbuilt backup feature. If you are backing up manually then the files are just stored in different areas. For example in Windows Vista and Seven you have a username where all your files are stored under. The path to this folder is C:\users\mitz; this is where you will find the Documents folder, the pictures, music, and so on.

Keep your computer organized

You are probably wondering why this is on a computer maintenance activity; however, it can be very important. Being organized helps you keep track of files and folders. This way you will know if you need a particular file on your computer or not?

You can backup or delete un-wanted files and just store the ones you really need. Keeping your computer neat and tidy helps you with the backup process. This way you know where everything is and you can copy it easily.

Guard your computer from viruses

- Anti virus software: Always have good antivirus software installed.
  The free ones do work occasionally; however, you are better off paying for an antivirus that has backup support and regular updates.

- Limit Downloading: Downloading from unknown sources is dangerous because it is highly likely that you will end up with a virus. If you are downloading a program, it is best to make sure it comes from a reputable software manufacturer. Do your research and you will save your computer some stress.

- Bad websites: Websites that offer things that are too good to be true or have XXXX content usually can give you a virus or a tracking cookie, the instant you visit this site. The best way is to stay away from these sites.

- Suspicious emails: If you are not sure who has sent an email and it has an attachment, do not open it; delete it. If it really is important, the person will resend it to you.

- Illegal software: If you don't have the real deal software you are putting your computer at risk. People have tampered and altered this software to make it work illegally and who knows what they have added to it. This software can, also, very easily do weird things to your computer.

Check and clean your registry from errors

You will probably have to buy a program for this. They automatically fix registry problems and prevent your computer from crashing or freezing due to hidden errors. One of the top programs that are Vista certified is Errorsmart or RegistrySmart.

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Clean inside your computer case

You are probably thinking why do I have to do that?' Well, you want to clean inside your computer to remove dust and dirt from the components in. Power supplies often blow up from being clogged with dust and processors usually overheat and die. It is a very common cause of hardware failure; therefore, prevention is better than cure.

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Self-Check 6.3-3

Multiple Choice

Directions: Read carefully the statements or questions; choose the correct answer listed below. Write your answer on the space provider before each number.

_____1. A computer maintenance activity that checks hard drives for error.
   A. Checkdisc

   B. Disc cleanup

   C. Disk defragmentation

   D. Scandisc

_____2. This will remove such files as temporary files, the recycle bin, compressed old files, offline WebPages, and downloaded program files.
   A. Checkdisc

   B. Disc cleanup

   C. Disk defragmentation

   D. Scandisc

_____3. A maintenance activity that organizes files and data into areas that help the computer run smoothly.
   A. Checkdisc

   B. Disc cleanup

   C. Disk defragmentation

   D. Scandisc

_____4. Another computer maintenance that will prevent your computer from crashing or freezing due to hidden errors.
   A. Avoid visiting bad web sites

   B. Clean inside your computer case

   C. Clean registry from errors

   D. Install anti-virus software

Answer Key 6.3-3

1. D
2. B
3. C
4. C

Information Sheet No. 6.3-4
Techniques in Utilizing World Wide Web in Teaching

Learning Objective:

After reading this information you must be able to identify the techniques of utilizing the World Wide Web (WWW) in teaching.

You have learned how to present a lesson utilizing the computer and multimedia projector. But it seems that you have used a teacher centered approach in presenting a lesson. Another trainee's centered approach that is becoming popular nowadays is the Computer-Based Training. Most of our training institutions are now equipped with computer and internet facilities. This will maximize the use of these facilities if we are to employ this approach. This lesson will introduce you the techniques of using the World Wide Web in making researches.

World Wide Web

The **World Wide Web** (abbreviated as **WWW** or **W3** and commonly known as **the Web**) is a system of interlinked hypertext documents accessed via the Internet. With a web browser, one can view web pages that may contain text, images, videos, and other multimedia, and navigate between them via hyperlinks.

Browsing and keyword searching

If you know different tactics for finding information on the WWW, your searches will be more successful. We'll provide activities in this lesson that will give you practice in browsing and keyword searching. Once you learn how to use the WWW to its fullest potential, you will be amazed at what you can locate in a short period of time.

There are two basic ways to find information on the World Wide Web: You can **browse** directories by subject, or you can **search** by keyword in search engines. While search engine databases are created by computer programs, directories are created and maintained by people. Directories don't cover the entire Web.

Browsing directories can be a very effective way to find the resources you need, especially if you need general information on a subject. If you are at the beginning of your research, or if you are searching for an overview of the topic at hand, it may also be helpful to use a directory.

Some of the WWW Directories

- Open Directory Project - http://www.dmoz.org

- Galaxy Directory – http://www. galaxy.com

- HotBot Directory – htt://hotbot.lycos.com

- Look Smart – http://www.looksmart.com

Searching the World Wide Web: Using Search Engines

Search engines are tools that use computer programs called spiders and robots to gather information automatically on the Internet. With this information, they create a database. Each of the major search engines attempts to do the same thing-namely, index the entire Web-so they handle a huge amount of data.

There are advantages to computer-generated databases. They are frequently updated, give access to very large collections, and provide the most comprehensive search results. If you are looking for a specific concept or phrase, a search engine is the best place to start. And you would be smart to look in more than one, because each engine gives different results.

Some of the WWW Search Engines

- All the Web – http://alltheweb.com

- Altavista – http://www.altavista.com

- Google – http://www.google.com

- Lycos – http://www.lycos.com

The Boolean operators are AND, OR, and NOT.

- The use of AND placed between keywords in your search expression will narrow the search results.

    For example, *training AND assessment* would narrow your search so that you would receive only those sites that have both the words *training* and *assessment* in them.

- Placing an OR between keywords broadens your search results.
    For example, *training OR assessment* would retrieve those sites that have either the word *training* or the word *assessment* in them.

- The NOT operator will also narrow the search.
  For example, *training NOT assessment* would narrow your search so you would get all hiking, but not camping.

- In some search engines, if nothing is typed between two words, you can assume an OR is between them. This is what we'd refer to as a default setting.

Techniques of using the World Wide Web in Teaching

- Using the WWW trainees can be given an assignment or further readings or videos that would enhance their learning of your previous lesson.

- As a trainer you must already visited the assign WWW sites and reviewed their contents.

- You can give your trainees guide questions that they will have to answer or activities that they will perform after searching the WWW.

- Lessons not covered in the training materials can be learned using computer-based training a resource that is available in the WWW.

Self-Check 6.3-4

_____1. It is a way of finding information on directories by subject on the
World Wide Web.
   A. Browsing

   B. Fiddling

   C. Searching

_____2. Below is a list of web sites, which one is the WWW directory?
   A. http://alltheweb.com

   B. http://www.dmoz.org

   C. http://www.google.com

   D. http://www.altavista.com

_____3. A Boolean operator placed between keywords in your search
expression that will narrow the search results.
   A. AND

   B. NOT

   C. OR

_____4. A Boolean operator placed between keywords in your search
expression that will broaden the search results.
   A. AND

   B. NOT

   C. OR

[Type text]

Answer Key 6.3-4

1. A
2. B
3. A
4. C

Information Sheet No. 6.3-5
Techniques in Effective Utilization of Computer-Based Training Resources

Learning Objectives

After reading this information you must be able to:

1. explain computer-based training

2. identify the different computer-based training techniques

3. explain the techniques in effective utilization of the computer-based training resources

After learning about the World Wide Web, you will learn in this lesson all about computer-based training and the techniques on how to effectively use them for the conduct of your training.

Computer-Based Training

Computer-based training (CBT) is any course of instruction whose primary means of delivery is a computer. A CBT course (sometimes called courseware) may be delivered via a software product installed on a single computer, through a corporate or educational intranet, or over the Internet as web-based training . CBT can be used to teach almost any conceivable subject. Other related terms:

- **CAI** - Computer-Assisted Instruction, and CBI - Computer-Based Instruction. Delivering instruction through the medium of a computer. These are alternative terms for computer-based training.

- **CAL** - Computer-Assisted Learning. Using a computer as an adjunct tool to aid in a traditional learning situation, like classroom training. The computer is a device to assist the instructor during the training process, like a blackboard or handouts.

- **CAT** - Computer-Assisted Testing. Assessing an individual through the medium of a computer. Individuals take the test at the computer, and the computer records and scores the test. CAT is imbedded in most computer-based training.

Computer-Based Training Features

CBT has a number of distinct and unique features, including:

- **Immediate Feedback**. The immediate feedback most computer-based training provides on trainee progress allows both instructors and trainees to monitor progress and adjust

instruction accordingly. This feature is important for all skills, because it ensures that students are actually learning what they need to know.

- **Placement**. Placement via on-line testing that matches a trainee with needed training is also built into many CBT systems. By using this feature, you avoid any unnecessary training for an individual. The CBT can accommodate each individual's needs by "branching" to the level of training that is appropriate for that individual.

- **Integration of Text, Graphics, Video, and Sound**. If the training is particularly content dense (many new concepts presented close together) or uses a hierarchy of skill acquisition (where current concept mastery is dependent on mastery of earlier concepts), CBT's integration of text, graphics, video, and sound facilitates the learning process. On average, people remember:

  20% of what they see,
  40% of what they see and hear, and
  70% of what they hear, see and do,

  so CBT's rich, multi-sensory delivery system can facilitate greater retention of new knowledge.

Computer-based training techniques

Most CBT uses one or a combination of the following techniques:

Tutorial

The most common of all techniques is the tutorial. It is used to introduce new information that must be taught in a sequential manner. It is useful for teaching factual information, simple discrimination, rules, and simple application of rules.

Drill and Practice

Another commonly used technique is known as drill and practice. It provides opportunities for practice when mastery of a new skill or information is desired. It should be used after initial instruction.

Training Games

Training games supplement other instruction and are used to provide motivating and engaging opportunities for practice after a skill or new information is taught. Training games capitalize on the competitive interests of learners and add entertainment value to instruction.

Simulation

The technique of simulation is most often used when practicing a skill in its real context is too costly or dangerous. It provides an opportunity for experimentation, and allows students to test assumptions in a realistic context. Simulations are also used to model real-world situations that are not physically dangerous or costly, in order to build realism and relevance into the training situation.

Problem Solving

One of the most challenging techniques used in CBT is problem solving. It helps students develop skills in logic, solving problems, and following directions, and is generally used to augment higher order thinking skills.

Demonstration/Presentation

Demonstration or presentation is best used to support the introduction of new information. It can also be used as a review tool.

Most CBT incorporates one or more of these techniques. A training game, for example, might have some of the elements of drill and practice; a tutorial might use problem solving questions. If one or more of these techniques is right for meeting your training requirements, CBT may be an appropriate training method for you.

Techniques in the effective utilization of the Computer-Based Training

The Role of the Facilitator

The role of the facilitator is an essential one. The competent facilitator identifies the areas of learner motivation and readiness and provides structured and incidental resources, instruction, direction, feedback and support to assist learning. They analyze student progress and support the slow trainees or extend the hungry learner. This support is essential in any form of program delivery including the use of the world wide web.

With less face to face communication the facilitator should compensate by wise use of other communication. Short email messages to see how the trainee is coping, regular positive feedback on progress though the programme and suggestions of learning strategies that match the learner to the material. The trainee should feel they have all the experience and support they need to be successful.

Trainees have to cope with new ways of learning plus enormous amounts of sometimes incorrect information. Facilitators will need to make sure that their trainees are learning and not struggling with the use of the web. It is important to focus on the learning not the teaching.

Helping a trainee learn

Learning is not a case of opening the learner's head and shoving

information in. The traditional lecture or textbook delivery is no longer the model of choice for learning. Trainees need an environment that provides better support. To achieve this, the programme needs to be viewed the way the students do, without losing site of the expected outcomes. Support mechanisms need to be developed that will make each student successful.

Trainees differ in their approach to learning. Some trainees simply need to be pointed toward a resource and they will be actively learning with minimal time and support. Other trainees need a patient, discovery approach with, considerable links to their existing knowledge, simply to recall and comprehend the foundations of any new skill or concept.

Whatever the learning style, the facilitator has a role in keeping the student actively learning. It is important to note that students who see value in the learning or where the learning captures their interest will focus their energy on the learning and persevere.

Once the support is in place the next essential ingredient is quality material that helps and doesn't hinder the student. They should be able to concentrate on the learning and not spend their time learning how to use the technology.

The material must be user friendly for content and navigation. Various studies show that even small amounts of information in a hypertext format can cause disorientation and a restriction to the learning process.

Effective Communication

Communication between learners and with a facilitator is essential ingredients in a successful learning environment.

Face to face communication is encouraged to support those who need it. When that is not possible discussion lists and internet chat go a long way to providing the necessary communication.

Managing discussion groups and chat rooms, like any other requirement in education, is more than setting it up and telling the students to "go for it". They need to be monitored by the facilitator to add appropriate comments and feedback as well as stimulate discussion.

Like a class or discussion, chat sessions need to be planned in advance. Trainees should be given prior reading assignments and discussion questions. All the tricks you use to stimulate discussion in a classroom need to be used in a web chat area.

Assessment

Assessment can influence the learner's whole future. It can also

motivate and direct the way trainees learn. Timely formative assessment can provide feedback to the trainee on how well they are progressing and where they should put their energy. It can also provide the facilitator with insights into possible support strategies for the student.

When the student is learning at a distance, assessment is a challenge.

Flexible, Just-in-time learning

The push toward more flexible learning has encouraged the development of web based learning as it meets the need for flexible pace/place/face (speed, location, feedback). There is also a return to focussing on the learning approach rather than the information. The information/literacy revolution meant that we put considerable importance on information.

Now that more information is disseminated, we are putting more emphasis on learning by doing and applying rather than only reading and listening. Workplace learning and just-in-time learning are becoming more widespread. Education is expected to go to the learner rather than the learner to their education.

A lot of learning happens by discovery and trial and then practice. Changes and requirements in the workplace mean just-in-time learning and on the job training provide the mix of practice and education. This form of learning is suited to the web delivery approach where they can access their learning and still practice in their own environment.

A bonus to the learning is that trainees are able to build up links to resources that, unlike a textbook, will continue to be current after the programme has ended. They learn how to get access to experts and resources without being hindered by distance or time.

Self Check 6.3-5

Multiple Choice

Directions: Read carefully the statements or questions; choose the correct answer listed below. Write your answer on the space provider before each number.

_____1. A computer-based training technique that is used to introduce new information that must be taught in a sequential manner.
   A. Demonstration

   B. Drill and practice

   C. Simulation

   D. Tutorial

_____2. A computer-based training technique that provides opportunities for practice when mastery of a new skill or information is desired.
   A. Demonstration

   B. Drill and practice

   C. Simulation

   D. Tutorial

_____3. A feature of computer-based training that provides trainee progress to allow both instructors and trainees to monitor progress and adjust instruction accordingly.
   A. Assessment

   B. Feedback

   C. Integration of text, graphics, video and sound

   D. Placement

_____4. Another term for computer-based training that has acronym of CAI.
   A. Computer-Assisted Instructions

   B. Computer-Assisted Learning

   C. Computer-Assisted Testing

Answer Key 6.3-5

1. D
2. B
3. B
4. A

Job Sheet No. 6.3-1

Facilitate Training Using Personal Computer and LCD/DLP Projector

Objectives:

Given a personal computer, LCD/DLP projector and VGA cable you must be able to present a lesson in 15 minutes following the guidelines and procedure in giving presentations.

Procedure:

1. Set-up LCD/DLP projector and personal computer
2. Present an information lesson using the LCD/DLP projector

Evaluation:

The trainer's observation must be based on the following criteria:

1. All steps in connecting LCD/DLP projector were completed in the correct sequence.
1. All safety precautions in operating LCD/DLP projector were followed.
2. Guidelines in using LCD/DLP projector were followed.
3. Guidelines in giving presentations were followed.

Performance Checklist No. 6.3-1
Utilize computer and Multimedia Technology to Present a Lesson

Trainee's Name: _____ Date: _____

During the performance of the activity did the trainee perform according to the required criteria?

Criteria	YES	NO
1. Located VGA ports of LCD/DLP projector		
• Located VGA port of the personal computer		
• Power ON the LCD/DLP projector and personal computer		
• Opened files for presentation		
• Displayed the presentation from LCD/DLP projector		
• Adjusted focus of LCD projector		
• Adjusted keystone effect		
• Checked color combination of presentation		
• Checked font size of the presentation		
• Maintained presence during the presentation		
• Mastered the content of the presentation		
• Maintained eye- to- eye contact with trainees		
• Well modulated voice		

For satisfactory achievement, all items should receive a YES response.

Comment:

Trainer's Name and Signature: _____

Date:

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_____

Introduction:

The National TVET Trainers Academy (NTTA) of the Technical Education and Skills Development Authority (TESDA) is undertaking continuous validation of the herein contained Competency-Based Learning Materials (CBLMs), through their actual use, for purposes of improving the CBLMs.

The users of these CBLMs are encouraged to give their valuable comments and recommendations to meet the given purpose. The patience and diligence of the users in answering every item of the questionnaire are requested. All responses shall be treated with confidentiality. As found acceptable, the indicated comments and recommendations would be considered in the process of improvement of the materials.

Instruction:

The questionnaire is divided into two parts. **Part I** requires a more detailed and in-depth analysis of the materials in order to obtain important notes which would greatly contribute to their improvement. **Part II** is more general in approach in gathering comments on the CBLMs.

Please tick ☑ the box corresponding to your answer. If you tick NO, please write your comments, suggestions and observations on the space provided.

Please accomplish the Validation Instrument and submit to your trainer/facilitator at the end of the training.

━━

Module Title :_____

Name:_____
| Last | First | M.I. |

Position/Designation:_____ No. of Years of Experience as Trainer _____

Title of Qualification Earned:_____

Educational Attainment:_____

Training Institution/ Company_____

Address: _____

Tel/CP Nos. _____ E-mail Address: _____

Signature:_____ Date:_____
[Type text]

PART I

1) COVER PAGE:
Is the Cover Page reflective of the Qualification being addressed by the CBLM?

YES	NO

If the answer is **NO**, please indicate your suggestion/observation.

_____

_____

_____

	YES	NO
2) Table of Contents: Does the Table of Contents list in sequential order all the materials in the module? _____ _____ _____ _____		
3) How to use this Competency-Based Learning Materials: Does it give clear directions on how to use the CBLMs? _____ _____ _____ _____	YES	NO
4) List of Competencies: Does it include all the competencies covered by the Qualification and highlight the competency being addressed by the module? _____ _____ _____ _____	YES	NO

[Type text]

5) Module Content: Does this page include the following items: a) Program/Course Title; b) Unit of Competency; c) Module Title; d) Introduction; e) Summary of Learning Outcomes; and Summary of Assessment Criteria?

YES
NO

If **NO**, please specify which part is NOT included in the Module Content.

_____
_____
_____

6) Learning Outcome Summary: Does the content of the Learning Outcome Summary give you a clear outline of the Contents, Assessment Criteria, Conditions, and Assessment Methods per Learning Outcome?

YES
NO

If **NO**, please specify which part of the Learning Outcome Summary is not clear to you and give us your suggestion

_____
_____
_____

7) Learning Experience: Does this page provide a clear instruction on how to proceed with the learning activities for a specific Learning Outcome?

YES
NO

If **NO**, please specify which part of the Learning Experience is not clear and in order.

_____
_____
_____

8) Are the **Information Sheets** readable, easy to understand and address the knowledge requirements of the specific Learning Outcome?

YES
NO

If **NO**, please specify which Information Sheet is not an appropriate learning content.

_____
_____
_____

[Type text]

9) Are the **Information Sheets** sufficient enough to attain the knowledge required in the assessment criteria of the specific Learning Outcome?

YES
NO

If **NO**, please write the suggested content to attain the required knowledge in the assessment criteria for the specific LO.

LO1. _____

LO2. _____

LO3. _____

10) Are the directions and test items included in the **Self-Checks** clear and relevant to measure the knowledge learned from the Information Sheets?

YES
NO

If **NO**, please specify which Self-Check does not give clear direction and relevant test items.

_____
_____
_____

11) Are the **Task/Operation/Job Sheets** in sequential order, easy to understand and lead to the acquisition of the skills required by the learning outcome/competency?

YES
NO

If **NO**, please specify which Task/Operation/Job Sheets are:

a) NOT in sequential order:

_____
_____
_____

b) NOT easy to understand

_____
_____
_____

c) Will NOT lead to the acquisition of skills necessary for the LO/competency

_____
_____
_____

[Type text]

12) Are the **Procedural/Performance Criteria Checklists** available, sufficient and valid in reference to Operation/Task/Job Sheets?

YES
NO

If **NO**, please specify the Procedural/Performance Criteria Checklist which is NOT

a) Available

_____
_____
_____

b) Sufficient

_____
_____
_____

c) Valid

_____
_____
_____

PART II

Checklist of CBLMs

Rate the CBLMs against each of the following criteria. Tick [**/**] the NO or YES box beside each item to indicate how well the materials meet the given criterion. Write your comments on the space provided to substantiate your answer.

	Yes	No	Comments
1. The learning materials contain the following basic components:			
a. Clear directions for using the learning materials;			
b. Rationale/Introduction explaining the purpose and importance of the skill or knowledge being covered;			
c. Statement of learning outcomes;			
d. Clear and complete explanation of the activities to be achieved per learning outcome;			
e. Instructions Sheet/Reference to other materials containing needed information;			
f. Instrument for immediate feedback;			
g. Checklist designed to measure trainee's performance			

[Type text]

	Yes	No	Comments
2. The learning materials also contain the following components:			
a. Listing of Pre-requisites			
b. Definition of Terms			
c. Information Sheets			
d. Task/Operation Sheets			
e. Job Sheets			
f. Self-Checks			
g. Answer Key			
3. The learning materials are either self-contained or resource-based. The latter requires the learner to refer to specified reference materials to deepen the learnings.			
4. The learning materials contain various activities to suit trainee's learning style			
5. The learning materials provide opportunities for trainees to interact with others			
6. Supplementary enrichment activities are provided to meet trainees needs and interests.			

Other Comments/Suggestions:

_____
_____
_____
_____
_____
_____
_____
_____

Thank you for your patience and diligence in answering every item

of the questionnaire, as requested.

-    from the NTTA Family -

[Type text]

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Dir. F. B. Zurbano

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The Competency-Based Learning Materials contained herein support the development of the competency **Utilize Electronic Media in Facilitating Training,** which is one of the competencies of a Technical Education and Skills Development trainer under the Trainers Methodology Level I Qualification, in reference to the Philippine TVET Trainers Qualification Framework.

The PTTQF is the system that establishes the structure and specifies the competency standards, as bases for certification of TESD trainers given different roles and qualification levels as follows: TM Level I: Trainer/Assessor; TM Level II: Training Designer/Developer; TM Level III: Training Mentor; and TM Level IV: Master Trainer.

The competencies under the TM Level I Qualification include the following:

Deliver Training Session

- Plan Training Sessions;
- Facilitate Learning Sessions;
- Supervise Work-Based Learning;
- Utilize Electronic Media in Facilitating Training;
- Maintain Training Facilities; and

Conduct Competency Assessment.

[Type text]