
PRACTICAL 5 PREPARATION OF TEACHING AIDS

Structure

- 5.0 Objectives
- 5.1 Introduction
- 5.2 Teaching Aids
 - 5.2.1 Definition
 - 5.2.2 Importance of A.V. Aids in Teaching
 - 5.2.3 Classification of A.V. Aids
- 5.3 Guidelines for Selecting and Using Teaching Materials in Nursing
- 5.4 Common Audio-Visual Aids Used in Teaching
 - 5.4.1 Graphic/Non-Projected Aids
 - 5.4.2 Projected Aids
- 5.5 Principles of Audio-Visual Aids
- 5.6 Guidelines for Evaluating A.V. Materials in Teaching
- 5.7 Let Us Sum Up
- 5.8 Answers to Check Your Progress
- 5.9 Activities

5.0 OBJECTIVES

After going through this practical, you should be able to:

- explain the importance of audio-visual aids in teaching and learning;
- classify the various types of A.V. aids that facilitate teaching and learning process;
- develop skills in preparing various types of learning resource materials used in teaching;
- discuss the relevance and use of various types of A.V. aids as per specific need; and
- discuss the standards for evaluation of A.V. materials used in teaching.

5.1 INTRODUCTION

We live in an industrial society in which modern inventions seem to have created educational problems faster than we can solve them. But the same industrial society has also provided the means for solving these problems. These include the computers, programme instructions, radio, recording, printed medias, motion films, television, slides and overhead projectors for using transparencies to improve the instructional communications. Audio-visual materials are produced, distributed and used as planned components of educational programmes.

This practical tries to describe to you i) the importance of A.V. Aids in teaching and learning, ii) provides guidelines for selection, utilization and preparation of A.V. materials, as well as iii) operation of equipment, and lastly iv) evaluation of these aids.

5.2 TEACHING AIDS

You have read in block 1 of BNS-111 about instructional method and media.

As you know audio-visual media are means of communication that help to make learning more meaningful, interesting and effective. These aids help in completing the triangular process of learning i.e. motivation, classification and stimulation.

5.2.1 Definition

Teaching aids are devices by which the teacher helps the students to clarify, establish and correlate accurate concepts, inspections and appreciation through utilization of more than one sensory channel. It means all the materials used to facilitate understanding of written or spoken words.

5.2.2 Importance of A.V. Aids in Teaching

The knowledge and use of teaching materials in teaching and learning is important for the following reasons:

- It enhances teaching, creates interest and stimulates learning.
- To encourage meaningful use of subject matter by imaginative involvement and active participation resulting in increased learning.
- To provide real experiences not available through other materials e.g. Field trips.
- To assure order and clarity of thought to form conceptual structures and establish meaningful systems of ideas.
- To act as media of communication, economize time and effort and make learning more permanent.

Check Your Progress 1

Give five reasons for using audio-visual aids in teaching.

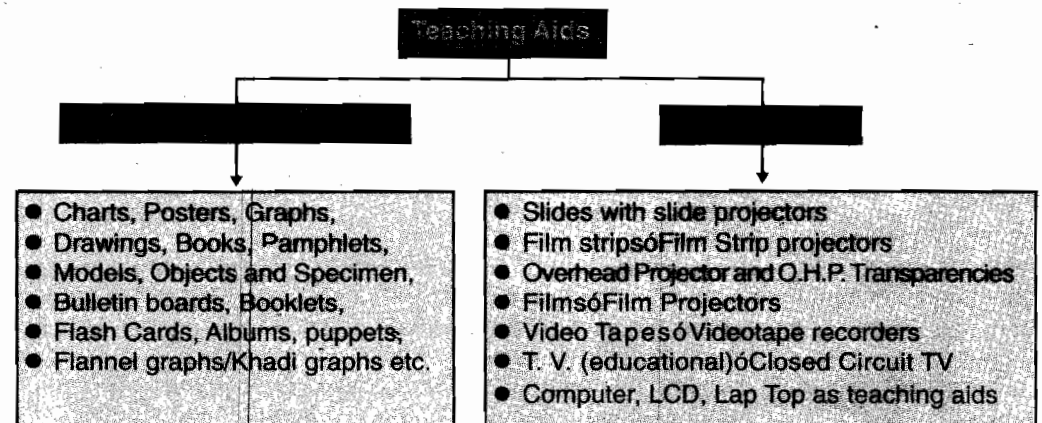
.....

.....

.....

5.2.3 Classification of A.V. Aids

A broad range of teaching aids can be used in the classrooms from picture, charts to film slides and complete computer program. There are various classifications of A.V. Aids but the commonly used classifications are given below:



For our discussion purposes here we will be using the classification e.g. graphic/non-projected and projected aids.

5.3 GUIDELINES FOR SELECTING AND USING TEACHING MATERIALS IN NURSING

It is important for the teacher to know what teaching aids/media are available, how to select them, and how to use them effectively and how to evaluate them. The decision to select instructional media depends on number of factors. The chief objective of the course and class objectives e.g. some objectives can be met by lecture methods and some by role play. Several methods would be suitable but it may be best to opt for variety. Check availability of the teaching aids.

While using teaching aids simultaneously explanation can be given about the theme.

Preview of the material must be done so as to check that it meets course objectives.

Teaching aids are the way to evaluate ideas used in conjunction with other teaching strategies.

5.4 COMMON AUDIO-VISUAL AIDS USED IN TEACHING

Instructional media are the channels through which content stimuli is presented to the learners. This stimuli is to motivate, direct attention, evoke responses, guide thinking and instruct the learners. Various media/channels can be selected depending on the objectives, availability of resources and levels of students. The Audio-visual media commonly used for the nursing students are graphic aids/non-projected aids and projected aids. Now let us discuss in detail about the utilization and preparation of these aids.

5.4.1 Graphic/Non-Projected Aids

The graphic aids are:

- Chalk Board/Black board
- Objects, specimen and models
- Posters
- Charts
- Fannel graphs/Khadi graphs
- Bulletin Boards, and
- Flash Cards, etc.

These aids have already been discussed in BNS-111, Block 1, Unit 4. Please refer to this Unit for detail. We shall now discuss about the projected aids.

5.4.2 Projected Aids

In this part, we shall discuss in detail the important projected aids used in teaching. Projected aids are particularly useful for larger groups. These can be used for i) class room teaching to motivate the students, ii) to bring distant past events into the class room, iii) to demonstrate certain skills and share some experiences at the same time.

Systems of Projection

Systems of projection are different methods by which light is directed from the source, through the source or reflected from the object being projected to the screen. These are direct, indirect and reflected projections.

- 1) **Direct Projection:** Most commonly used method. In this light passes from the projection bulb through the condenser lens, through the material to the objective lens and on the screen. A minimum light is lost by this method. Example—Slide Projection.
- 2) **Indirect Projection:** Used for specific purposes. They are 7"×7" or 10"×10" transparency projectors with an indirect light source and using mirrors. The projector can be used in front of the room, the materials being projected are placed on a platform. Light loss is minimal and can be used in well lighted room.
- 3) **Reflected Projection:** Used in opaque projectors. Opaque materials such as pictures, books, objects and other types of flat objects can be projected by this method. Here a series of mirrors surrounds the flat pattern of the projector. The mirrors reflect all possible light into the picture or object. The image is reflected in a large mirror immediately above the object through a large objective lens to the projection screen. Used in a darkened room. The main projected aids used are:
 - Slides
 - Film strips
 - Overhead transparencies
 - Opaque projections
 - Films
 - Videotapes, and
 - Educational Television.
 - Computers

For using these materials, we need different types of projectors. Let us review them.

Types of Projectors

Hardware	Software
Slide Projectors	Slides
Individual slide viewers	
Film strip-cum-slide projectors	
Combination projectors with carriers	
Film strip projectors	Film Strips
Overhead Projectors	Overhead transparencies
Opaque Projector	Opaque material such as books, objects
Film Projectors	Films 16 mm, 8 mm, 35mm etc.
Video tape recorders	Videotapes
Computer	Power point presentation

Basic Facilities Required

- Projector support
- Light source

- Controls and accessories
- Seating arrangement

Administrative Aspects

- Maintenance and care of equipment from dust, heat and moisture etc.
- Have the instructional booklet, price list and catalogue etc.
- Have stock of bulbs.
- Know the cost effectiveness

After having the basic idea of projected aids let us discuss them one by one in detail.

Slides

Slides are a form of projected media that are easy to prepare. They are still pictures on positive film which you can process and mount individually yourself or send to a film laboratory. The standard size of the slides are 2x2 inches. Any 35 mm camera will make satisfactory slides.

Types of Slides

- 1) **Photographic Slides**
 - 2"x2"
 - 3"x4"
 - Black and White
 - Coloured

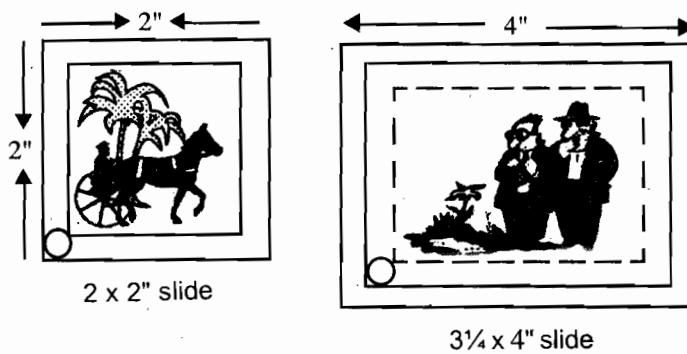


Fig. 5.1

- 2) **Hand Made Slides:** Can be made with:

- Acetate Sheet
- Cellophane
- Etched glass
- Plain glass
- Lumarith
- Silhouettes

Slide Frames: Can be made with:

- Card-board
- Glass frame

- Metal
- Thick Paper

Equipment for Making Slides

- Acetate transparencies/cellophane/plain glass etc.
- Card Board. Metal or glass frame and binding tape.
- India/China ink, fine pencil or Anelyne dye.

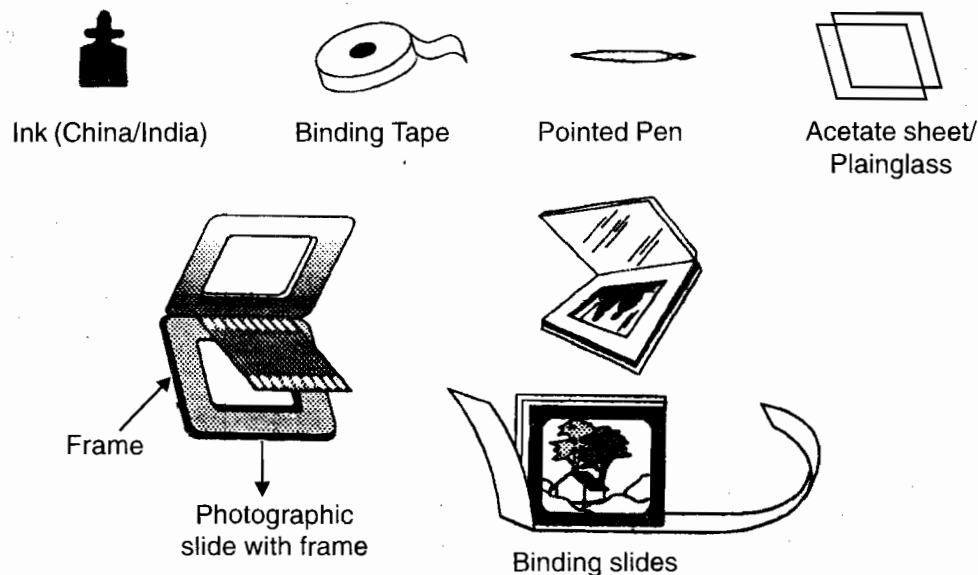


Fig. 5.2: Equipment for making slides and projection

How to Make it?

- Select the subject, exact words and make rough draft.
- Draw/print/write on transparency/cellophane with India/China Ink.
- Leave the margins on the slides
- View it and mount it for smooth operation.

Equipment for Projection

- Slide Projector
- Projector with attachments/carrier; single/multiple
- Individual slide viewer
- Screen/Wall can be used for projection

Procedure for Operating

- Select the slides
- Arrange them in sequence and number them
- Set up the projector, slide holder and attachments
- Handle slides from the edge
- Insert slide up-side-down. If there is international red mark on the Right side up on the slide that should come towards you while projecting the slides

- Put on the fan first and then bulb
- Focus and project them
- After projection remove them and store in proper box to prevent spoiling. Label it.

The distance between the projector and screen should be 13-14 in an average class room.

Advantages

- 1) Requires only filming; processing and mounting by self or laboratory
- 2) Results in colourful, realistic, reproduction of original subjects
- 3) Preparation with any 35 mm camera for most uses
- 4) Easy to revise and up-date
- 5) Easily handled, stored and re-arranged for various uses
- 6) Can be combined with tape narration or can control time for discussion
- 7) May be adapted to group or individual use

Limitations

- 1) Requires skill in photography or self-making.
- 2) Colour processing is costly.
- 3) Darkening facilities required for projecting, difficult for students to write.
- 4) Can get out of sequence and be projected incorrectly.

Now lets review what are the characteristics of a good slide.

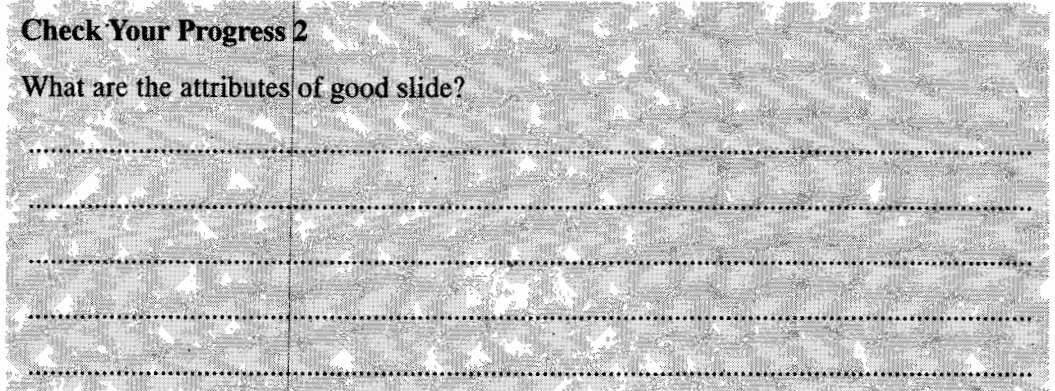
Characteristics of a Good Slide

- 1) ***It is simple***
 - depicts one idea
 - minimum description
 - absorb information in about 4 seconds
- 2) ***It is legible***
 - Area should not exceed 7.5 cm × 11 cm
 - No. of words not more than 35
 - Number of lines not more than six
 - Use 2 or 3 columns and rows for tables
 - Headings in bold letters.
- 3) ***It is accurate***
 - No spelling mistakes
 - No factual errors
- 4) ***It is appropriate***
 - Material according to subject
 - Depict best visuals

- Technically well executed
- Properly exposed and developed
- Properly mounted.

Check Your Progress 2

What are the attributes of good slide?



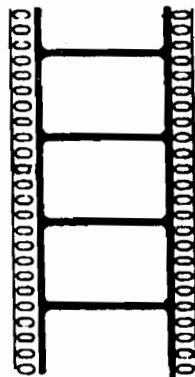
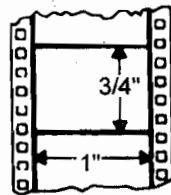
Film Strips

Film strips are sequence of transparent still pictures with individual frames on 35 mm film. They are closely related to slides, but instead of being mounted as separate pictures, the film after processing remains uncut as a continuous strip. A tape recorded narration can be synchronized with film strip.

Software Required

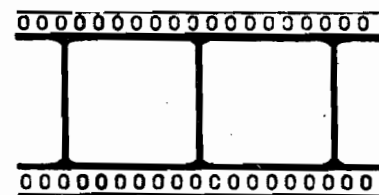
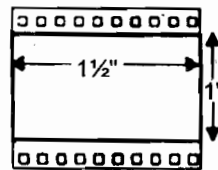
Film

- Black and white,
- or
- Coloured
- Commercial or teaching



3/4 x 1" size

Single frame Film Strip



1 x 1 1/2" size

Double frame Film Strip

Fig. 5.3

Size

- 3/4" x 1" (18 x 24 mm), single frame run vertically.
- 1" x 1 1/2" (24 x 36 mm) double frame run horizontally.

Hardware

- Film strip cum slide projector
- Film strip projector
- Film strip cum slide micro projector
- Combination project with film strip attachment.

Any of the available model can be used, each model vary in its make and operation.

Types of Film Strips1) **Discussional Film Strips**

It is continuous strip of film consisting of individual frames arranged in sequence usually with explanatory titles. Each strip may contain 25-100 pictures or more.

2) **Sound Slide Film**

It is similar to film strip but instead of explanatory titles or spoken discussion recorded explanation is audible, which is synchronized with the pictures.

In order to overcome the difficulty of synchronizing the record with picture sound slide film projectors that automatically advance the film in time has been manufactured.

Advantages

Film Strips:

- 1) are compact, easily handled and always in proper sequence.
- 2) can be supplemented with recordings.
- 3) are inexpensive when quantity reproduction is required.
- 4) are useful for group or individual study at projection rate controlled by instructor or user.
- 5) are projected with simple light weight equipment.

Limitations

- 1) Are relatively difficult to prepare locally.
- 2) Require film laboratory service to convey slides to film strip form.
- 3) Are in permanent sequence and cannot be rearranged or revised.
- 4) Are difficult to explain at times without proper script, titles, or teaching guides.

Parts of the Projector

- Reflector
- Projector lamp
- Condenser lens
- Heat filter
- Film strip gate
- Focusing-head, Objective-lens/projector lens, tilt knob
- Cooling fan and motor
- On-off switches, Plug and wire

How to Prepare Film Strips

- Prepare a script, keeping in mind the objectives and audience.
- Plan each shot.
- Arrange each picture in proper sequence.
- Photograph each scene in proper order (35 mm pictures) and develop the film in strip form and not cut into individual slides.
- Titles may also be added to your film strip by your photographer.
- Carefully store the film in film strip container.
- Label the container and file it.

Procedure for Operating

- 1) Place projector on film surface.
- 2) Attach film strip carrier.
- 3) Put on the projector, open the film strip, see the size of film, fix it as slide and view it.
- 4) Put it up side down and pass it between the gates and rotate it.
- 5) Rotate one frame once only and give the commentary.
- 6) Expose for adequate time and move to the next frame.
- 7) Put off the light first and then the fan after projection.
- 8) Put on the room lights.
- 9) Remove the film strip and store it in a close container to prevent from damaging.
- 10) Replace the projector.
- 11) Maintain catalogue and index.

Care of Film Strips

- Handle it by edge
- Avoid careless threading
- Do not project the film for too long to avoid burning
- Protect from dust, scratches and fire
- Clean lenses, glasses etc. with soft material

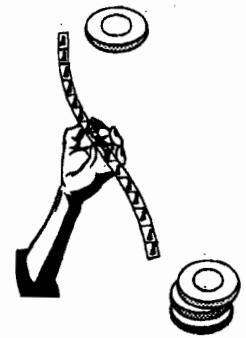


Fig. 5.4

Check Your Progress 3

List three advantages of using film strips in teaching.

.....

.....

.....

.....

.....

Transparencies are a popular instructional medium. They are simple to prepare and easy to operate with the overhead projector which is light weight. A 10" × 10" Acetate sheet with printed, written or drawn material is placed on the platform of the projector and a large image is projected on a screen behind you. The projector is used from near to the front of the room with the teacher standing or sitting beside, facing the students. She can point out various or important points with pencil or pointer without looking at the screen or leaving her seat. Good transparencies can be preserved for future use.

Advantages

- 1) Permits face to face interaction with the students.
- 2) Can be used in day light conditions.
- 3) Can present information in systematic developmental sequences.
- 4) Simple to use with presentation rate controlled by the teacher.
- 5) Requires limited planning and can be prepared in a variety of inexpensive methods.

Limitations

- 1) Requires special equipment, facilities and skill for more advance preparation methods.
- 2) Overhead transparencies are large compared to other projected aids such as slides.
- 3) Projection lamps are costly.
- 4) Keystone effect can be there. When the lens of the projector is not parallel to the screen an optical distortion occurs resulting in broadening of the picture at the top and narrow at the bottom.

How to Overcome Keystone Effect?

This can be overcome by putting a special screen tilted towards the projector.

Now let us see how we can prepare the transparencies.

Materials Required:

Transparency

- Acetate sheet—single/roll
- Washed X-ray plate
- Cellophane paper (Temporary use). Best are acetate sheets.

Pens

- Lined paper or grid sheet.
- Chart Paper/Frame and Masking Tape.
- Spirit based inks (permanent use)
- Water based inks (Temporary use)

— Spirit based can be erased with Methylated spirit and water based with damp cloth.

Method of Preparing

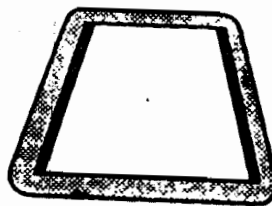
- Place lined paper or 6 mm lined grid sheet beneath the acetate sheet before writing the material.
- Use simple lettering style 6 mm for text and 9 mm for titles.
- Use capital letters for titles.
- Limit the written material to six lines in each transparency.
- Use only one lettering style and space it for regular and even look.
- Use thick chart paper or ready-made frame for framing the transparencies for better and neat looks.
- Use masking tape rather than cellulose tape to prevent from brittleness from heat.
- Store them flat, clean and inter-locked with paper.



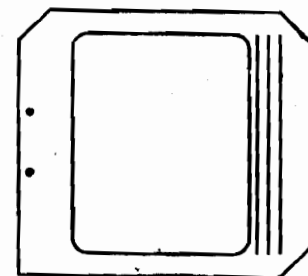
Simple Transparency



Overlay Transparency



Mounted Transparency



Mounting Frames

Fig. 5.5: Transparencies

Guidelines for Making Effective Transparencies

- 1) Have one main idea on each transparency.
- 2) Include only relevant figures and diagrams.
- 3) Use simple lettering style in writing.
- 4) Use diagrams in proportion to its lettering.
- 5) Keep the message simple and clear.
- 6) Emphasize the key messages.
- 7) Use colour and lettering with discretion.

- 8) Have proper format, the element or the transparency should be compatible with the size of transparency stage.
- 9) When using masks and layouts, they should look attractive and in logical sequence.

Please Note: The transparencies can be type-written, material can be reproduced from books and can be enlarged through Thermal Copier, Photocopier and can be coloured by adhesive films, ink masks and pens.

1) Masking and Overlay Techniques

Many a times it is essential to present the information in sequence and not to reveal the whole information at once. This can be done by technique of Masking or Overlaying. Let us study in detail about masking and overlay techniques.

Masking: Masking means to hide or to cover which enables step-by-step progression of intended information to be given to the students. This regulates the flow of information according to the intake capacity of the students/audiences. Projected material can be revealed or concealed or left on the screen to be compared with new material. It helps to focus attention on specific material to be highlighted.

Types of Masks

- 1) **Spot Masks:** These are designed to disclose a series of areas to be projected either sequentially or non-sequentially (Fig. 5.6 a,b)

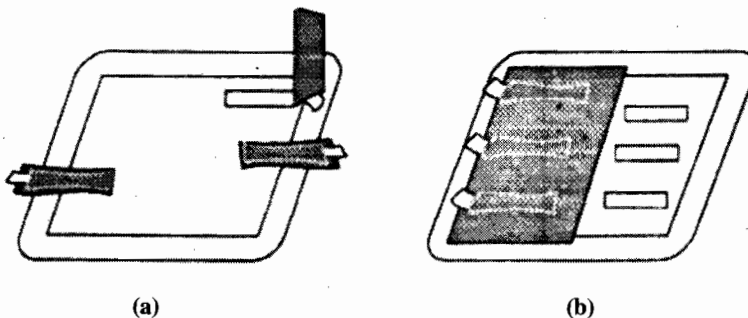


Fig. 5.6: Spot Masks

- 2) **Sliding Masks:** They may cover all [(Fig. 5.7) (a)] or part of transparency [(Fig. 5.7) (b)] and are used for continuous sequential disclosures. Sliding masks may move horizontally, vertically or diagonally across the projector.

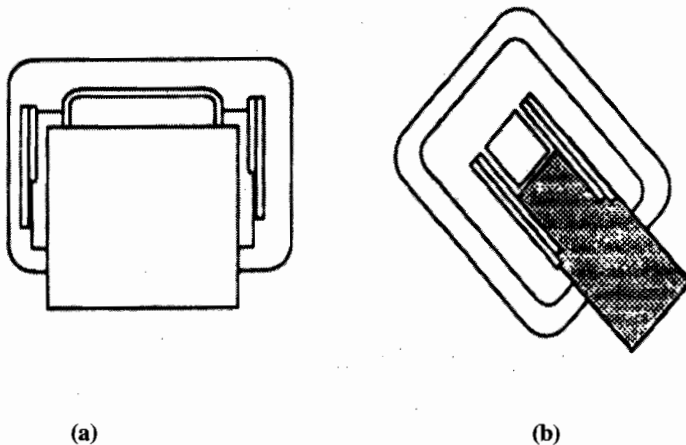


Fig. 5.7: Sliding Masks

- 3) **Accordion/Pleated or Folding Masks:** Functionally they are related to sliding masks. They can be used effectively to reveal instantly, lines of type, parallel illustrations etc. They are easy to manipulate and inexpensive to make but are short lived. They are also bulky to file, awkward and difficult to transport.

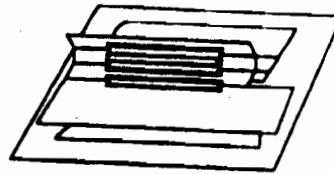


Fig 5.8: Accordion/Pleated/Folded Masks

- 4) **Circular Masks:** They pivot by means of central grommets and are manipulated to reveal separate "Information bits" within the circle.

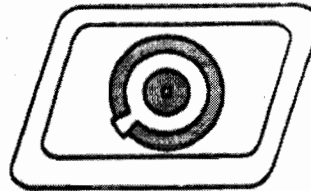
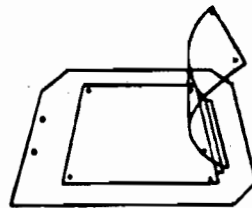


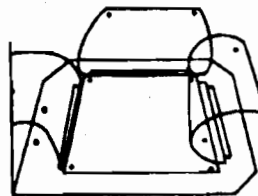
Fig. 5.9: Circular mask

Overlays

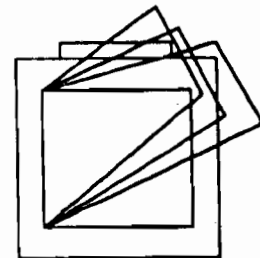
Additional (2-3) transparency sheets are hinged and overlaid on a based transparency to project the information simultaneously or in a separate sequence. This technique is particularly useful when projecting a complex visual message in logical sequence, series of illustrations or diagrams and to highlight messages by editing colour to overlays. Overlays can be mounted from sides, top, bottom or all can be mounted on one side only.



The overlay transparency affixed on one side



Three overlay transparency affixed on three sides



All three overlay transparencies affixed on one side of the base transparency

Fig. 5.10

Storing of Transparencies

- 1) Discarded card board boxes.
- 2) X-ray film boxes.
- 3) L.P. Record carrying cases.
- 4) Folds of chart papers:
 - Place paper in between two transparencies
 - Store in a cool and dry place
 - Develop system of indexing for ready references.

ii) Overhead Projector

It is a versatile and popular device for projecting transparencies. It permits day light projection and face to face interaction with the students, O.H.P. gives a bright evenly lit image which attracts the student's attention. The operator has complete control over the presentation.

Parts of the Overhead Projector

- Projection head: Lens and Mirror
- Focus wheel
- Projection handle
- Hand grips for acetate roll
- Glass plate/transparency stage
- Fresnel lens
- Switch for cooling fan
- Switch intensing—dimmer
- Adjustable feet
- Overhead Projector

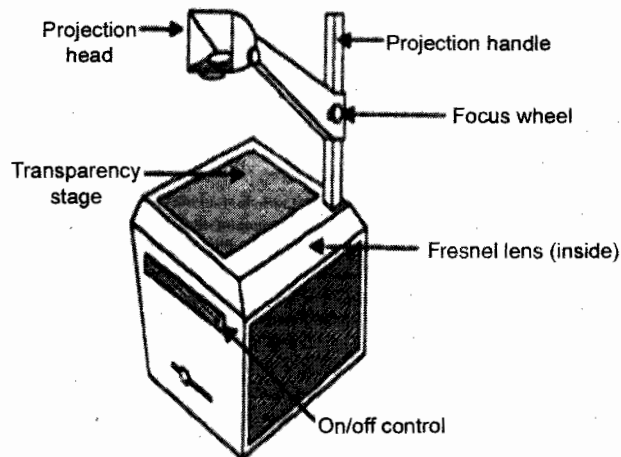


Fig. 5.11: Overhead Projector

Procedure for Operating Overhead Projector

- 1) Set up the projector near the front of the classroom, with the projection head facing the screen/wall, adjust distance.
- 2) Put on the cooling fan and then lamp.
- 3) Place the transparency on the transparency stage with the right side up.
- 4) Focus the projection lens until the image is sharp.
- 5) Reveal the transparency only when required to demand the attention of the students.
- 6) Allow enough time to read the information.
- 7) Use pencil, pen or pointer to emphasize the important points

- 8) When writing on transparency, be careful not to obstruct the view with your head.
- 9) Put off the light first and then the cooling fan.
- 10) Replace the OHP after it is cool.

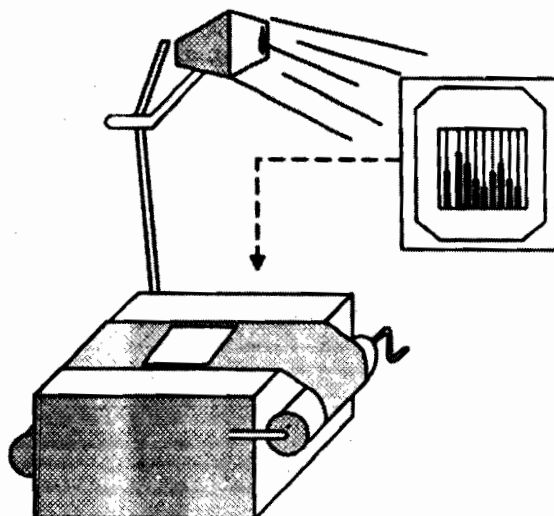


Fig. 5.12: Overhead Projection

After Care of the Equipment

- Use anti-static cream for polishing plastic surfaces.
- Clean lens periodically with a moist pad and detergent cleaner:
- Do not handle projection lamps.

Check Your Progress 4

- 1) List the materials required for making a transparency.

.....

.....

.....

.....

.....

.....

- 2) Name various types of masking techniques.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Opaque projector is the only projector on which you can project a variety of materials e.g. book pages, objects, coins, postcards or any other similar flat material that is non-transparent.

Epidiascope projects materials that are transparent also.

Advantages

- 1) Can project a wide range of materials like stamps, coins, specimen, when one copy is available.
- 2) Can be used for enlarging drawings, pictures and maps.
- 3) Does not require any written or typed material, hand-written material can be used.
- 4) Verbal instructions can be adopted to the needs of the students and teacher can give any length of time when projecting the material.
- 5) Gives a large screen image in true colours.
- 6) Simple operation.

Limitations

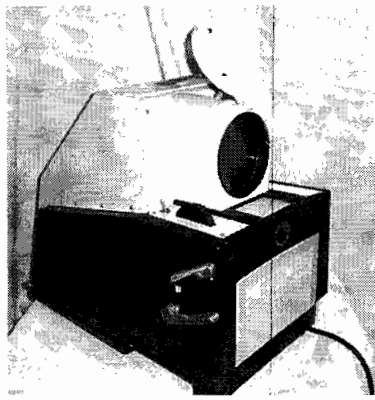
- 1) Large and bulky equipment.
- 2) Requires high voltage bulb (1000 watts), the material can be burnt if projected for a long time.

Equipment Required for Projecting

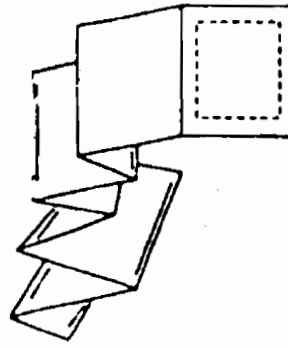
- Opaque projector
- Material to be projected
- Size can be: 6" × 6", 8" × 11" or 10" × 10"
- Large screen
- Darkening facilities
- Pointer

Parts of the Projector

- Objective lens
- Parabolic mirrors
- Reflectors
- Bulb
- Platen/Platform
- Switch controls
- Cooling Fan
- Motor



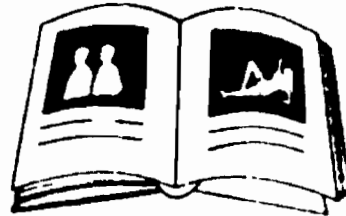
Opaque Projector



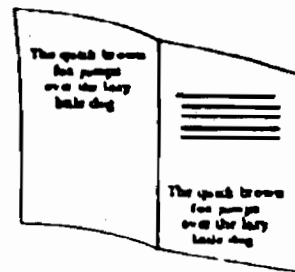
Folded paper
Pamphlet



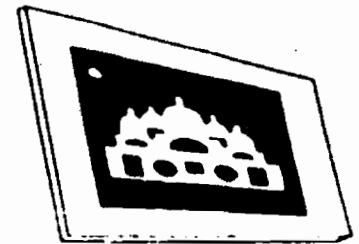
Flat Objects



Book Page



Written Material



Mounted Photos

Fig. 5.13: Materials for Projection

Setting and Operation

- Place the projector on a stand or firm surface.
- Connect power cord.
- Organize the material prior to projection and mount small pictures, photographs etc. on a card board or paper to prevent from blowing and preserving after use.
- Place material on the platform/platen
 - with right side up
 - with bottom towards the screen
- Darken the room properly
- Turn the cooling fan and lamp
- Level by the adjustment of the Lens.
- Focus on the screen.

After Operation

- Put off the light first and then the cooling fan
- Disconnect power cord.
- Cover the machine when cool.

Motion pictures are recognized as one of the most powerful media for education. In motion films the action is stimulated by projecting a series of still pictures at a rapid succession. In sound films 24 frames are projected per second. This rapid projection makes them seem to move when it is basically an optical illusion.

The films are available in standard sizes of 8, 16, 35 and 70 mm. 16 mm films are best accepted for education purposes in schools and colleges and 8 mm for individual instructions. They can be projected in the class-rooms and does not require special booths to project. Whereas 35 mm and 70 mm films are best used for entertainment purposes in theatres and require special booths to operate them.

Advantages of Films in Teaching

- 1) Promotion of the viewers through motions, movements and activities.
- 5) Enlarge or reduce the actual size of object by combining a camera and microscope to photograph objects and actions too small to be seen by naked eyes e.g. Amoeba.
- 6) Condense time and space by omitting unnecessary material and concentrating on important aspects.
- 7) Provide an easily reproduced record of an event or an operation e.g. how a counselor handles a behavioural problem, events of deaths due to a particular disease such as plague.
- 8) Creates reality and allows to reveal the invisible through animated drawings e.g. functioning of an eye or ear, working of a machine.
- 9) Influence and change attitudes of the learners which are not yet firmly established.
- 10) Overcome barriers of literacy, even the slowest learning person can react to the message presented.
- 11) Promote an understanding of abstract relationships by clarifying ideas, events through visual and auditory devices e.g. Photographs combined with animated drawings, charts and diagrams.
- 12) Provide supplementary or enrichment experiences for individual student.
- 13) Provide a review of summary of the information learned in other ways by the class. Provide an occasional break for entertainment.

Limitations of Films

- 1) Projecting equipment is heavy.
- 2) Darkening and electricity facilities are required.
- 3) Very costly—Hardware and software both.
- 4) Has a fixed sequence, difficult to up-date.
- 5) Often seen as recreational device.
- 6) Audience variability in relation to age, educational background and socio-cultural factors may effect its effectiveness.
- 7) Film literacy is required.

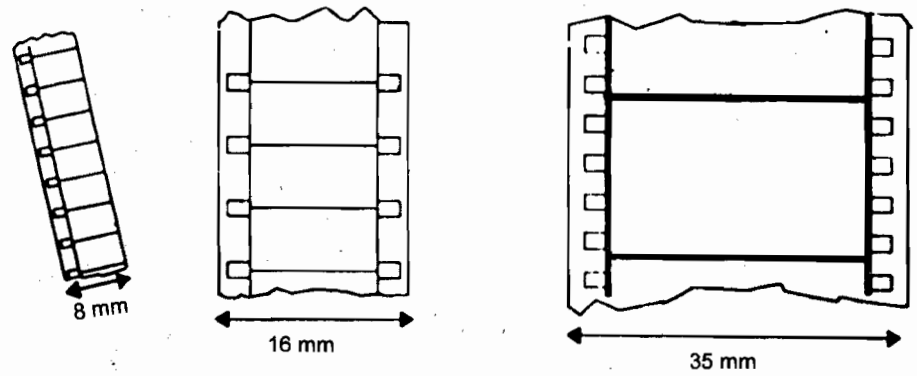


Fig. 5.14

Size of Films

8 mm Films

16 mm Films

35 mm Films

70 mm Films

Purpose

— Used for individual or domestic purposes.

— Educational/entertainment

— Commercial/educational

— Commercial/entertainment

All these films are used in the same size of projector as film.

Types of Films

- 1) Silent Films : Has sprocket holes on both sides. No sound track. This can be projected on both silent or sound film projector.

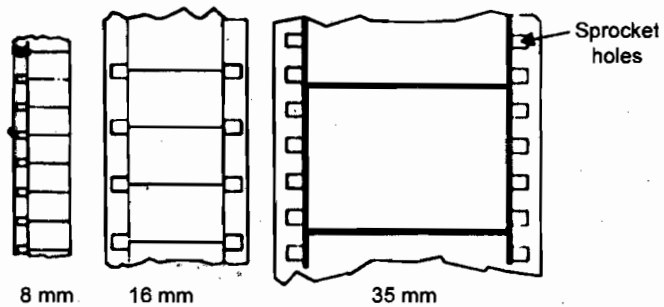


Fig. 5.15

- 2) Sound Films : Has sprocket holes on one side and sound track on other. Can be projected only on sound film projector.

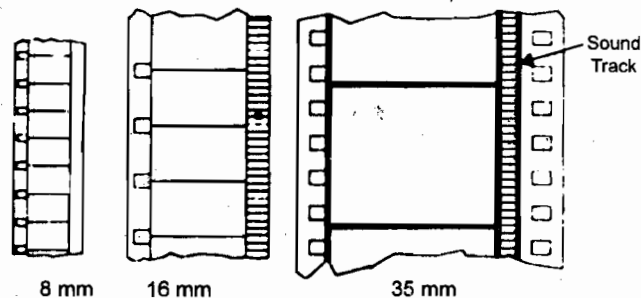


Fig. 5.16

Reels, Timing and Winding

The table below shows the reel size and running time of the different sizes of motion pictures film:

Silent Film (16 frames per second)				
Film Size	Feet/Minute	Fitage of Film	Dalmeter of reel in Inches	Running time in minutes
35 mm	60/60	1000/2000	10/15	16.6/33.2
16 mm	24/24	400/800	7/105	166/33.2
	24/24	1200/1600	12/14	49.8/66.6
8 mm	12/12	50/100	2-13/16	4.11/8.3
	12/12	100/200	3-5/8	8.3/16.6

Silent Film (16 frames per second)				
Film Size	Feet/Minute	Fitage of Film	Dalmeter of reel in Inches	Running time in minutes
35 mm	90/90	1000/2000	10/15	11.1/22.2
16 mm	36/36	400/800	7/10.5	11.1/22.2
	36/36	1200/1600	12/14	33.3/22.4

Parts of the Film Projector

- Feed reel
- Film gate
- Sprocket
- Take up reel and supply reel
- Focusing lens
- Sound drum
- Projection lamp
- Shutter
- Photo electrical reel
- Editor lamp
- Amplifier

Steps in Operating and after Care

- 1) Secure suitable teaching film.
- 2) Order in advance, at least thirty days and review the film before using.
- 3) Check accompanying instructions, manual and film guide.
- 4) Set up the projector, have sufficient extension cord, plugs and extra projection lamp.
- 5) Check sitting arrangement, lights and ventilation.
- 6) Darken the room after threading the film.
- 7) Prepare students before presenting the film; explain them the objectives of the film.
- 8) Show the film in a smooth, professional manner.

- 9) Evaluate students' understanding of the lesson.
- 10) Re-show film, if necessary.
- 11) Replace the film in a proper container and catalogue it, and also the projector after covering it.
- 12) Use film information as soon as possible.

Categories of Educational Films

The educational films can be classified into:

- 1) **Entertainment Films:** The entertainment film aims at emotional rather than intellectual appeal. This may or may not have educational contribution because it is designed particularly for entertainment. However, there are entertainment films that do make contribution towards the educational objectives of the curriculum e.g. "Eye of the Blind", "Woman in White" films.
- 2) **Advertising Films:** The primary purpose of these films is selling of the goods of the advertiser sponsoring the films. Recently many industrial films are also prepared in a way that they have utility in the course of studies.
- 3) **Documentary Films:** The documentary film is one which deals with a social situation. It attempts in a realistic, undisguised and authentic manner, to interpret the events, the cultures or the problems of the day for the purpose of assisting man to understand his place in society and to stimulate thinking and planning for the future. Many documentary films may be used for instructional purposes and are excellent teaching aids in the field of social problems e.g. preventing of AIDS etc.
- 4) **Text Films:** These films are specifically prepared for integrating in a course. These may provide information, show a process, demonstrate a skill or any other activity. These are also called "How to do" films. Training can be provided through these films by their proper selection and utilization.

Screens

A screen is essential for projecting films, film strips and slides etc. Various types of screens are available in the market. The purpose of the screen is to reflect a maximum amount of the light projected on to it by the projector. This reflected light enables the viewers to see the picture.

Types of Screens

The screens are made with one of the three kinds of surface—beaded, matte and silver or "aluminized". Each of these screen surfaces has different reflecting characteristics which determine when it should be used in preference to other surfaces.

- 1) **Beaded Screen:** It has a white surface embedded with thousands of tiny glass beads. Each act like a lens in reflecting the light. It reflects very large percentage of light but over a narrow angle of about 20 degree on each side of the axis of projection. Useful for rectangular room.

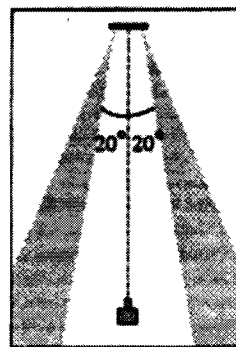


Fig. 5.17: Beaded

- 2) **Matte Screen:** It has an opaque pure white surface without much surface shine. This screen will not reflect as much light as a beaded screen but its reflecting capacity is more or less the same overall angles of view. Most useful in a square room or any situation in which the viewers have to be seated at a fairly wide angle.

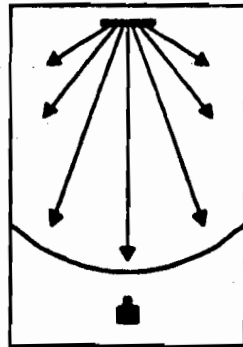


Fig. 5.18: Matte

- 1) **Silver Screen:** The principal use of this screen is for projection of three dimensional or "stereo" pictures. The surface of this screen reflects exactly as a mirror. This screen is very useful for normal projection under conditions in which the projector is high and screen is placed at an angle.

Supporting Devices

- 1) The portable tripod model.
- 2) The wall model.
- 3) The easle or table model.
- 4) The reflector stand.
- 5) Wall and ceiling model with rope and pulley.
- 6) Electrically operated wall and ceiling model.
- 7) Wall-type screens of specially built high standards and lace and grommet screens on frames.

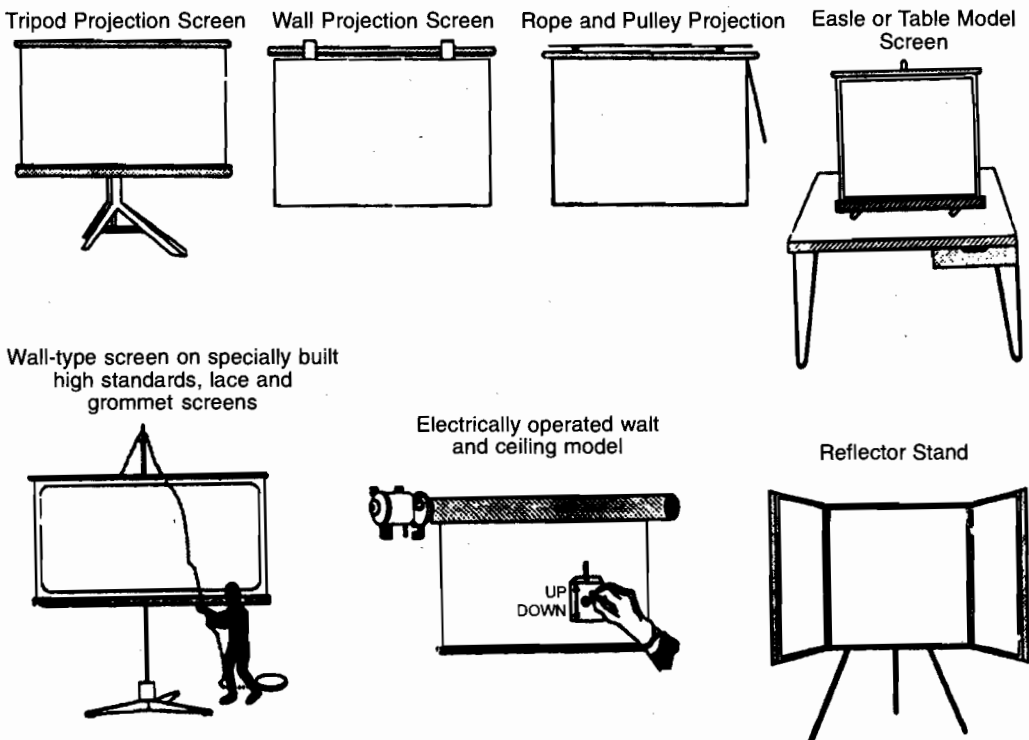


Fig. 5.19

Check Your Progress 5

- 1) List different categories of films used in teaching and learning.

.....

.....

.....

.....

.....

- 2) Name two types of screens and briefly explain one of them.

.....

.....

.....

Video Tape Recording and Videodisc

It is a medium in which images are recorded electronically on magnetic tape along with sound.

Advantages

- 1) Are useful in describing motion, showing relationships and giving impact to topic.
- 2) Allow immediate replay of video recording.
- 3) Can be reused and cheaper than films.
- 4) Easy to record sound and pictures together.
- 5) May include special recording techniques.
- 6) Can combine still and motion on video disc.
- 7) Convenient to make duplicate copies of video tape recording.

Limitations

- 1) High cost for studio production equipment.
- 2) Has reduced the value of films in teaching.
- 3) Master disc is expensive to produce.

Equipment for Video Tape Recording

- *Video Camera:* It receives visual through the lens that are focused on the light-sensitive surface with the camera.
- *Video Cassette Recorder:* It converts electrical impulses into magnetic force representing picture and sound on the tape surface.
- *Microphone:* It receives sound waves, convert them into electrical impulses that are sent through a cable to the video-tape recorder.
- *Video-monitor or Television receiver:* For viewing scenes after they are shot.
- *Tripod or cart:* For placing video tape recorder.

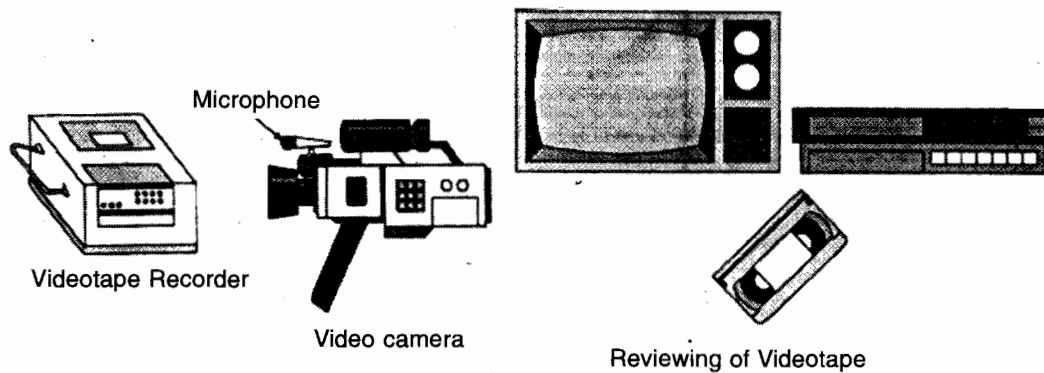


Fig. 5.20

Guidelines for Selection and Handling Video Tapes

- 1) Select a high quality tape for better sound and picture.
- 2) Identify the format of recorder compatible with the equipment you have.
- 3) Choose a suitable tape recording time, based on the amount of the tape and the speed of the tape movements.
- 4) Do not expose tape to dust, high-humidity and extreme temperature.
- 5) Place the tape in its container, vertically to prevent stretching, ceasing and curling which can distort picture and sound.
- 6) Avoid repeated exposure to X-ray by carrying videotape recording.

Educational Television

Television is the presentation of an image on an electronic screen. The message on the screen may be 'Live' the event is occurring while the viewers see it or the message may not be live, it is presented by a film or videotape prepared directly for television viewing or films, filmstrip, drawings, slides and photographs are examples of prepared messages to be later used on Television.

Advantages

- 1) It is an important media in communication of information, ideas, skills and attitudes.
- 2) Media for achieving educational and family goals.
- 3) Provides real life experiences and gives a feeling of presence at the scene.
- 4) Enrich students' knowledge by transmitting wide range of experiences through still pictures, films, objects, specimen and dramas.
- 5) Brings models of excellence to the classroom, viewers can hear and see the great scientists and creative teachers.
- 6) Make programmes understandable and appealing to persons different in age, education or maturity.
- 7) Disseminate ideas and information to people of similar interests and maturity e.g. doctors, lawyers and teachers.
- 8) Saves time by eliminating the repetitions by editing and enable the students to learn more in less time.

- 9) Provides both instructive and enjoyable experiences by making it interesting and providing variety of experiences.
- 10) Can reach thousands of students and viewers at the same time and also enables the teachers to improve his communication skills.
- 11) The teaching can be incorporated with class room techniques.

Limitations

- 1) One way communication device.
- 2) Moves at a constant speed, you cannot scan a television programme, you have to match the tempo of your learning to the tempo of TV presentation.
- 3) Small screen size in comparison to motion pictures enables to classify detailed information.
- 4) Lack of personal contact with the teachers which deprive the students from guidance and motivation.
- 5) Learner remains a passive spectator and not an active participant.
- 6) Fixed timing of presentation may not match with your schedules.
- 7) More abstract than the: exhibits, we can observe the compressed experiences but cannot touch, handle or see a material at our own pace.

How the Television can be Effectively used in Teaching?

- 1) By making it instructor guided — giving proper experiences.
- 2) By systematic broadcasts related to course of study or syllabus with objectives and planned learning experiences.
- 3) By ordered and sequential broadcasts presented at regular intervals in sequence, one builds upon another.
- 4) By integrated broadcasts related to other learning experiences such as practice, reading, discussion, and labs.

Types of Television Teachings

Televisions can be used in three basic ways:

- 1) **Total Television Teaching:** There is either no teacher in the classroom to complement and supplement the TV teachings or only sight assistance is given by a 'Live' teacher through teleconferencing. This is used to carry on independent study by providing rich contents.
- 2) **Television as a Complementary Basic Resource:** This functions as a part of regular curriculum, just as text books and work books.
- 3) **Television as Supplementary Enrichment:** This has special value in bringing very latest information to a topic of class room for discussion e.g. events recorded by films or videotapes. It is built on the concept of enriching the knowledge and experiences.

Computer

Computer can be used to teach the student with the help of power points. You will learn in detail about computer in your course in BNSL-112.

Teleconferencing is another method through which a group of students sitting at a long distance can be explained the various concepts. Even a live demonstration can also be done of nursing procedures.

- 1) Prepare the classroom having proper seating, lighting and darkening facilities.
- 2) Selecting the programme for total, supplementing or complementing the teaching.
- 3) Involvements and responses of learner in production of good educational television programme.
- 4) Evaluation of the programme following the television programme.

You have learnt about different projected aids in this unit. Depending on our objectives, availability of resources and needs of the students you can choose an appropriate media.

5.5 PRINCIPLES OF AUDIO-VISUAL AIDS

The success or failure of Audio-visual instructional programme depends on Planning and administration behind the programme. The following basic principles may be used as a guide for effective A.V. educational programmes:

- 1) The instructional programme should be organized and administered so that the A.V. materials function as an integral part of the programme e.g. an educational film to be shown with certain objective rather than as an entertainment.
- 2) An A.V. education programme should be flexible, provide opportunities to the teachers to purchase, rent, loan and prepare their own instructional materials; So budget, space and materials to be provided.
- 3) A.V. material should be available whenever and wherever they are needed for effective utilization as an integral part of curriculum.
- 4) A.V. material should be carefully located in a place where teachers have easy accessibility and convenient use.
- 5) The teacher must have the 'Know-how' of the best utilization of these materials and, help students to acquire skill in its effective use.
- 6) Legal aspects should be considered in production of educational communication media such as Television programmes. Permission to be obtained from authorities to avoid possible legal involvement.

These are the principles which can serve as a criteria for evaluation of a well organized educational A.V. programme.

Check Your Progress 6

- 1) Explain briefly the three important points you will keep in mind when selecting A.V. materials for teaching.

.....

.....

.....

.....

.....

2) Give five characteristics of an effective Audio-visual educational programme.

5.6 GUIDELINES FOR EVALUATING A.V. MATERIALS IN TEACHING

Following are the guidelines for evaluating A.V. materials in teaching:

- Is the subject matter timely and furnishes up-to-date information?
- Is the material skillfully presented, well organised and easy to understand?
- Is the information free from irrelevant and unimportant material that will waste students' time?
- Is the material clearly aimed to convey educational ideas rather than self serving propaganda?
- Does the material meet the high standards set for or other instructional materials?
- Is the material at the comprehension level of the intended users?
- Is the material prepared or procured is economical?
- Are the needs of a particular class of students met with the type of material used?
- Was the time spent producing materials worthwhile?
- Did the use of Audio-visual materials resulted in authentic and planned outcomes?
- Is the agency or individual who produced the material clearly noted?
- Are the Audio-visual material preserved safely?

5.7 LET US SUM UP

In this Practical, you have learnt how to improve the understanding of Audio-visual media and its uses. The teacher and researchers in media must share techniques which may be of help in understanding more about learners. It is also desirable that the user of these media should maintain an analytical attitude towards their selection and use, and judge its effectiveness against some systematic format. The objective should be that message conveyed by the teacher through A.V. aids is clear.

5.8 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

- a) To supply concrete basis for conceptual thinking.
- b) To provide real experience not available through other materials.

- c) To encourage meaningful use of subject matter by imaginative, involvement and participation of students.
- d) To motivate and create interest in learners.
- e) To economize time and effort.

Check Your Progress 2

Good slides are:

- a) Simple
- b) Legible
- c) Accurate, and
- d) Appropriate

Check Your Progress 3

- a) Film strips are compact, in proper sequence and can be handled easily.
- b) Film strips can be supplemented with recordings.
- c) Film strips are useful for group and individual study, at projection rate controlled by the user.

Check Your Progress 4

- 1) Transparency sheets, transparency pen; lined paper and chart paper for framing and binding tape.
- 2)
 - a) Spot masks
 - b) Sliding masks
 - c) Accordion masks
 - d) Circular masks.

Check Your Progress 5

- 1)
 - a) Entertainment films
 - b) Advertising films
 - c) Documentary films
 - d) Text films
- 2)
 - a) Beaded screen
 - b) Matte Screen

Matte Screen: Opaque, pure white surface, gives light less than beaded screen. Light reflects on all angles. Useful for square rooms.

Check Your Progress 6

- 1)
 - a) Does the material provide true picture of the idea to be presented?
 - b) Is it appropriate for age, intelligence and experience of learner?
 - c) Does it contribute meaningful content for the learner?

- 2) An effective A.V. educational programme has the following characteristics:
 - a) A. V. materials are integrated part of the programme.
 - b) Programme is centralized and under one specialized head.
 - c) Programme is flexible and provides opportunities to teachers to make their own decisions.
 - d) Easy accessibility and effective utilization.
 - e) Periodical evaluation of its functions, utilization and expenditure.

5.9 ACTIVITIES

- 1) Prepare two 2×2 inches slides on any topic, using acetate sheet or cellophane paper and frame it with thick chart paper.
- 2) Prepare a simple transparency of 7×7 depicting characteristics of a good slide.
- 3) Select appropriate A.V. aids (graphical) for teaching Anatomy of Heart to GNM 1st year.