## Suggestion of additional Audio Visual equipment

I think that this center need additional Audio Visual equipments.
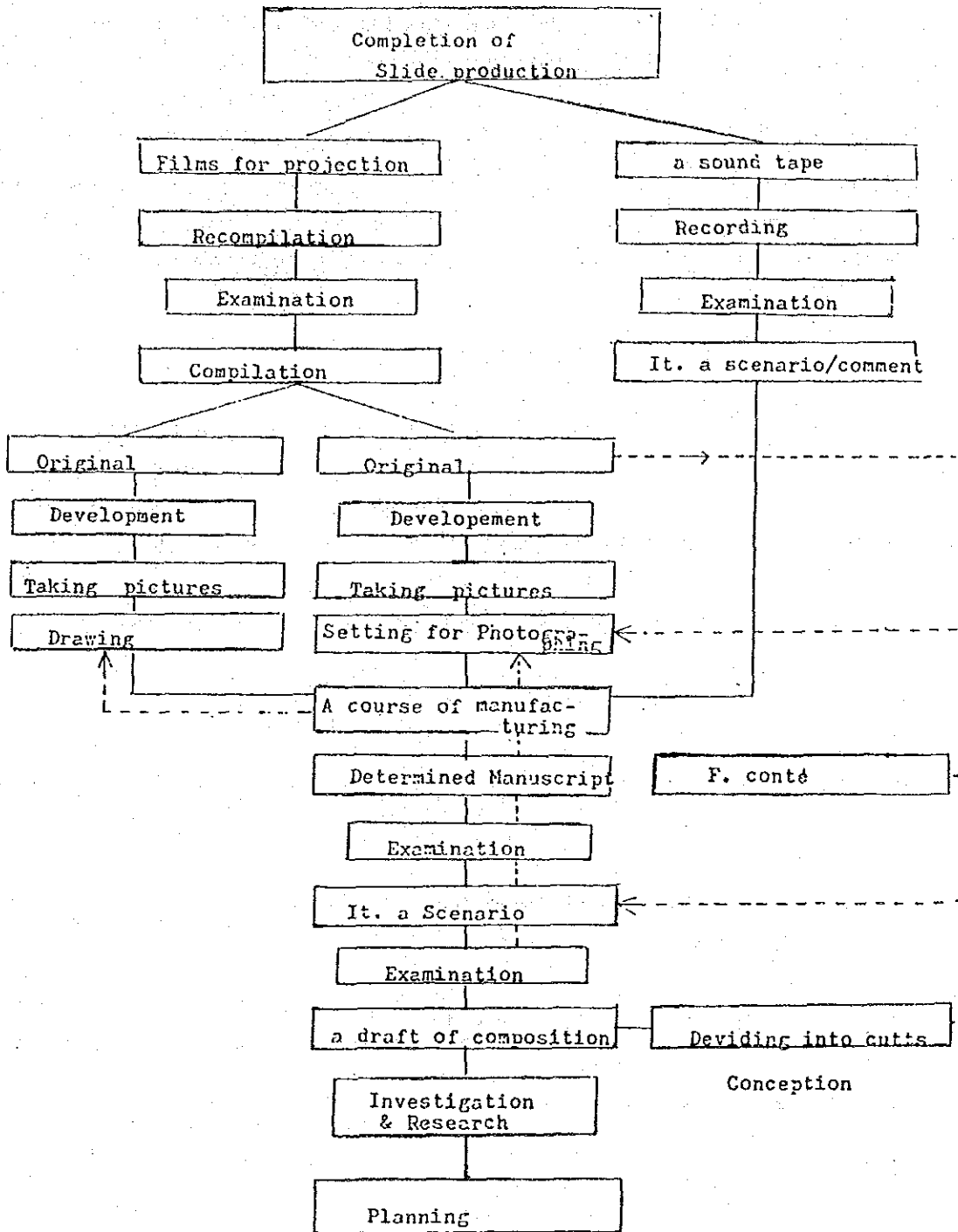I will show the list.

1. Overhead Projector        ELMO HP-3000        1unit
2. Wagon for projection to use slide projector and 16mm projector    1unit
3. Wagon for color television set         1unit
4. Editor for 8mm films          1unit
5. Tape splicer for 8mm films         1unit
6. Splicing tape for 8mm films
7. NIKON 100mm micro lens         1unit
8. SUNPAK ring electronic flash         1unit
9. Lighting kit                1set


Articles of consunption

1. NATIONAL reflector lamps    100V 300W ( flood type )
2. Color slide films  FUJICHROME 100D
3. MASTER transparence sheet ( 26X26cm )
4. MASTER transparence paper frame ( 26X 26cm )
5. MASTER color sheet for transparence sheet
6. GAKKEN clear polarized paper
7. GAKKEN color polarized paper
8. Spare fluorescen lamp for KING brite box 5000

Production of Educational Slide Program


From Planning to Scenario

```
                    ┌─────────────────────────┐
                    │      Completion of       │
                    │      Slide production    │
                    └─────────────────────────┘
                       /                    \
          ┌──────────────────────┐    ┌──────────────────────┐
          │ Films for projection │    │     a sound tape     │
          └──────────────────────┘    └──────────────────────┘
          ┌──────────────────────┐    ┌──────────────────────┐
          │     Recompilation    │    │      Recording       │
          └──────────────────────┘    └──────────────────────┘
          ┌──────────────────────┐    ┌──────────────────────┐
          │     Examination      │    │     Examination      │
          └──────────────────────┘    └──────────────────────┘
          ┌──────────────────────┐    ┌──────────────────────┐
          │     Compilation      │    │ It. a scenario/comment│
          └──────────────────────┘    └──────────────────────┘
             /              \
```

| Original | Original | - - - → - - - - - - - - |
|---|---|---|

| Development | Developement |
|---|---|

| Taking pictures | Taking pictures |
|---|---|

| Drawing | Setting for Photogra-phing ← - - - - - - - - |
|---|---|

```
          ┌──────────────────────────┐
          │ A course of manufac-      │
          │            turing         │
          └──────────────────────────┘
```

| Determined Manuscript | F. conté |
|---|---|

```
          ┌──────────────────────┐
          │     Examination      │
          └──────────────────────┘
          ┌──────────────────────┐
          │    It. a Scenario    │ ← - - - - - - - - - - -
          └──────────────────────┘
          ┌──────────────────────┐
          │     Examination      │
          └──────────────────────┘
```

| a draft of composition | Deviding into cutts |
|---|---|

Conception

```
          ┌──────────────────────┐
          │     Investigation    │
          │      & Research      │
          └──────────────────────┘
          ┌──────────────────────┐
          │       Planning       │
          └──────────────────────┘
```

A medium for Audio-Visual Education

1. Visual Media ...... Documents, Books, Paintings, Printed
Matters, Patterns, Photographs, O.H.P
(Over Head Projector).

2. Audio Media ...... Loud Speaker, TApe Recorder, Radio
Receiver.

3. Audio and Visual Media ...... T.V, V.T.R, Motion Picture, Slide.

Characteristics of Slides

Advantages

1. sharp and vivid picture and a large amount of information.

2. A camera and a tape recorder at hand are just enough for making slides.

3. Easy production process and less expensive production cost.

4. Picture images can treely be expressed by combined use of actual photos,
patterns and titles.

5. Slides essentially aims at Theme Expression, making it easy to under-
stand. (The same true with Cinema and T.V)

6. The slide projector is light in weight.
(Convenient for carrying)
And easy in operation. (Compared with cinema)

7. The slide projector is not expensive.

8. Specific scene can be stopped for supplementary explanations.

Disadvantages

1.  Nothing can be better than real thing.

    (This is common to Cinema and T.V)

2.  Information sometimes passes through without being caught.

    (This phenomenon can commonly be seen to the Motion Picture and T.V

    being a bottleneck for Audio-Visual Education).

3.  Still Picture.  As time passage and sense of motion can not fully be

    expressed.

4.  Slide Projector may often be operated in wrong way, leading to non-

    coincidence between comments and pictures.

5.  There are some problems concering '' tone '' and '' sharpness ''

    duplicated prints.

    (The same is true with Video)


Attitude toward the slides production.

We must be considered the slide capacity.  Whether slide can accept the

large amount of Audio-Visual information.

1.  Whether the theme is proper or not?

    (Is theme meaningful and appropriate?)

2.  Whether arranging sequence is proper or not?

3.  Number of elements.

    (Too much elements makes the comments ambiguous.)

4.  Projection Time (Within 20 minutes)

5.  Number of Frames.

    (When deciding number of trames, be sure each comment coincides with

    the picture.  Two explanations for one picture and one explanation

    for many pictures are both no good)

6.  Projection Time for one scene frame.

    (Proper projection time for oen scene is 5-20 seconds)

7. Content of one scene.

(Since the projection time is short, simple expression must be made cosidering the fact that both audio and visual aids are supplementary)

9. Easiness of Comments.

(The problem of object and technical terms. difficult technical terms may destroy whole storry, but too much emphasis on easy expression remains you stay in basic field, preventing you from advancing into the higher level.

The highly meticulous and detailed explanation will be available in in the printed matters).

Preparatory considerations before starting the job.

1. Actual image has reality. Make use of it as much as possible.

2. Patterns and titles are effective way of expression. But you should not rely upon them too much.

3. Composition, superimpose, etc, are more effective way for expressing comparism, the direction of movement.

How to make senario.

1. Planning

When you make a slide programme, you must consider these things.

a). When

deadline, time

b) Who

Producer, crew

c) Whom

learners, level of teaching

d) Where

Conditions of classroom

e) What

Theme

f) Why

Document, Education, Culture, Amusement.

g) How

Stlye of expression

h) How much

Cost

2. Collection of material and document.

Research.

Material and document to be collected swiftly, widely and in depth document should be rich both in quality and quantity.

3. Selection of material and document.

This is a important step in the program making process. Selection should be rigourous and to the point.

4. Scenario writing

How to arrange and distribute the cuts.

Introduction.

General remarks          Divide them into chapters, clauses,
Particular remarks       items, decide the number of cuts, and
Conclusion               arrange.

There are various types of presentation for a scenario, but it is essential that a good scenario indicates ''what is to be shown'' and ''what is to be said''.

Whatever the style of scenario presentation, imagination should be used to attract the audience attention and interest.

| NO. | PICTURE | NARRATION | MUSIC | $\frac{2}{\lambda}$ |
|-----|---------|-----------|-------|---|
| 1 | | | M₁ | 7 sec. |
| 2 | | | | 6 sec. |
| 3 | | | F.O. | |
| 4 | | | | |

Scenario sheet.

Some remarks for scenario writing.

1. Use standardized words.
   (Especially in the case of technical terms).

2. The programme should leave enough time for the audience to watch the content and to think about it.
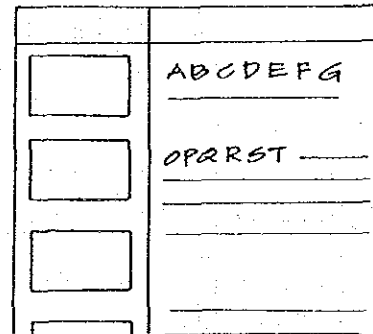
3. Narration should be sufficiently spaced.



Not Correct                    Correct

4. Narration should be in a coversational style and not in a written style.

5. A scenario sheet should have a lot of blank space.
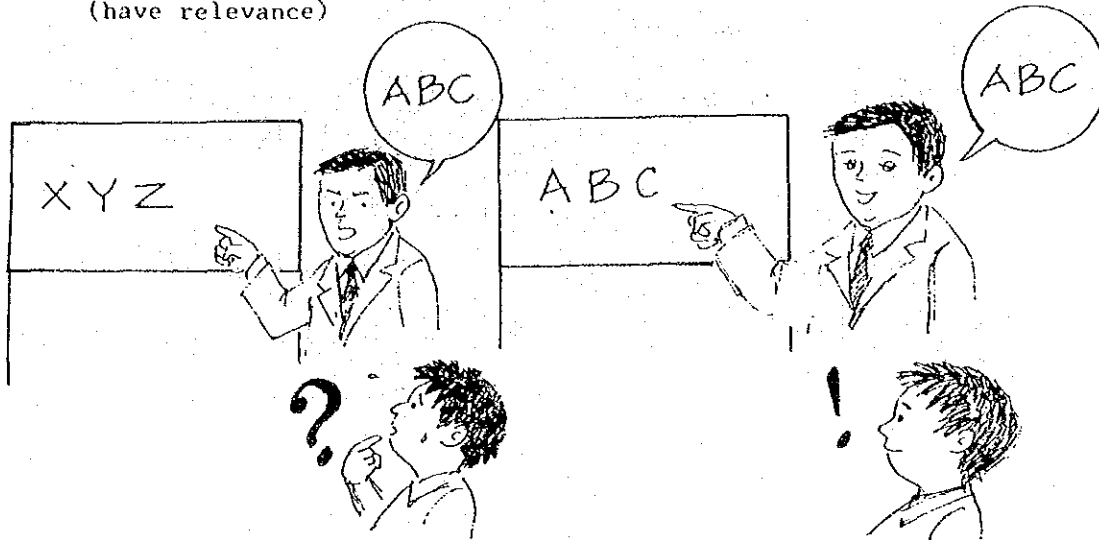   (to scribble personal remarks.)
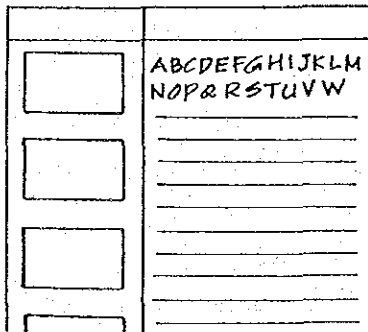


Not Correct                    Correct

6. Pictures and Narrations should be inter-connected
   (have relevance)



7. A scenario must be simple and easy to read.

8. A scenario must be attractive

9. A scenario should be written in such a way that it attracts the
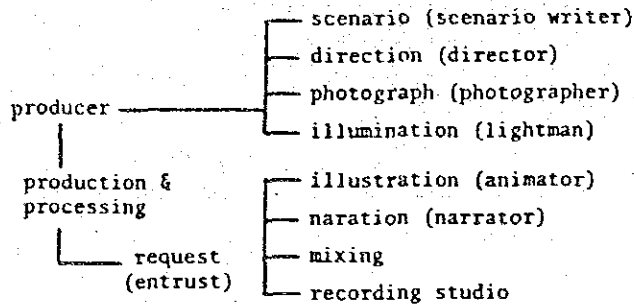   interest of the audience.


Safe approaches are

   i)    Start dealing with an wasy subject and go on to more complex
         ones.

   ii)   Start with things known to the audience before introducing
         unknown subjects.

   iii)  Start with concrete subjects and gradually introduce abstract
         concept.

   iv)   Begin by explaining principles before dealing with exceptions.

## How to make slide as an educational material



projection system
cine single strip film

slide frame          double strip film

manual          mechanical syncronization

cassette tape          open reel tape

## Staff for slide making



producer
— scenario (scenario writer)
— direction (director)
— photograph (photographer)
— illumination (lightman)

production & processing
— request (entrust)
— illustration (animator)
— naration (narrator)
— mixing
— recording studio
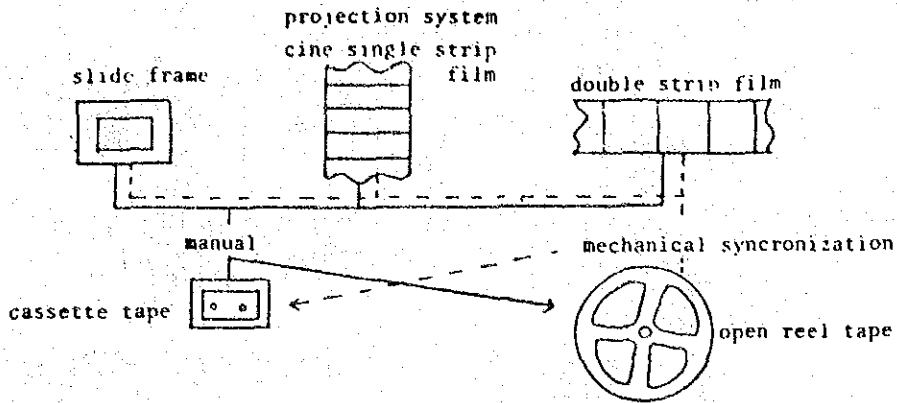
## Color riversal films for slide projection

| | name of films | abriviation | ASA |
|---|---|---|---|
| daylight type | Exta crome 64 | ER | 64 |
| | "        200 | ED | 200 |
| | "        400 | EL | 400 |
| | Koda crome 25 | KM | 25 |
| | "        64 | KR | 64 |
| | Fuji crome RD100 | RD | 100 |
| | "      RH400 | RH | 400 |
| | Sakura crome RD100 | | 100 |
| tungusten type | professional Exta crome 100 | ET | 160 |
| | Koda crome 40 | KPA | 40 |

Photo — Taking

1. Necessary equipments

2. Meterials to be used

3. Points of photographing

4. Depth of field

5. Lenses

6. Care of your lenses.

\* Photo – taking

1. Necessary equipments

   Camera ........... 35mm, single-lens reflex camera.
   Lens      ............ 50mm micro type, 100mm, 28mm or 35mm.
   Exposure meter ............ built-in meter is not good, SEKONIK STADIO
   METER
   Filter ........... Kenko LBC – 12
   Tripod
   Electronic Flash (strobo)
   White lamps ........... Flood type, 500W – 300W (two)

2. Materials to be used
   Color reversal film
   Materials for mounting

3. Points of photographing

   a. Outdoor in the day or open view at night ...... without filters
      indoor  with insufficient light ..... use electronic Flash.
      Fluorecent lamps are not good.

   b. Be careful for film loading and winding back.

   c. Measure the proper exposure .... using exposure meter.

   d. Fix the camera firmly with hands.

   e. Be careful for focussing.

   f. Confirm the framing.  Dont make too much space in the upper part.

   g. Push the shutter lightly.

   h. Wait for the good shutter chance.

   i. Rewing back your film soon after finishing.

   j. Check whether film is in your camera or not before opening the
      back lid.

   k. Develop your film soon after photographing.

   l. When photographing in-door with white lamps and daylight type films.

      i)  Cut the sunlight from the outside.
      ii) Put the filter (LBC – 12) on the lens or put the gelatine filter
          (B-5) on the white lamps.
      iii) Tripod is always necessary.

   m. When you use the electronic flash, be careful about shining.

4.   Depth of field.

    Simply reters to how much of your picture will be in focus. Sometimes
    by using the right combination of f/stops and shutter speeds and lenses,
    a great deal of your picture will be in focus.  At other times, maybe
    only a fraction of your photo will be in focus.  (This is called shallow
    depth of field).

    Depth of field is affected by three things:

    i)   Your f/stop
   ii)   The distance from your camera to the subject
  iii)   Your lens.


Here are the rules.

The smaller your f/stop, the greater your depth of field.  That is, the
more of your picture will be in focus.  For instance, a picture shot at
f/22 will have much more in focus than a picture shot at f/4.

Second rule:  The farther your subject is from the camera, the more will
be in focus.  shorts of landscape have a greater percentage of the picture
in focus than shots of people standing close to you.

Third rule:  The " longer ", or more telephoto your lens is, the less will
be in focus.  Wideangle lenses (35mm) will put, almost everything in focus;
you'll have excellent depth of field.  Normal lenses (50mm) will have a
great deal in focus and you'll have good depth of field.  A telephoto lens
(135mm) will have very little in focus; you'll have shallow depth of field,
and your focus will be critical (on some portraits taken with telephoto
lenses, the eye will be in focus and the ear will be out of focus).

There will be some instances when you'll want good depth of field ........
for landscapes and interior shots of rooms, etc.  There will be other times
when you'll want shallow depth of fields, and  need only a small part of
your picture in focus; this is useful to eliminate distracting backgrounds
in portraits, for shots that create mood or an air of mystery.

So, you must decide what's most important when you're taking your picture.
If depth, of field is important, you'll want a high f/stop, like f'11 or
f/16, and you'll shoot the photo wtih the widest lens you have that will
do the job.  If you don't want most of your picture in focus, you can cut
down on depth of field by using a more wide-open f/stop, such as f/z, or
by using a most telephoto lens.  Maybe you'll need a fast shutter speed
........ to freeze the action in a sports photo, for example.  Then you'll
choose your shutter speed first, and let your depth of field and f/stop
take a back seat.

How can you tell in advance what your depth-of-field will be?
There are depth-of-field scales on many camera.  This scale consists of 2
sets of f/stops, one going to the right, hte other to the left.  The scale
is, usually printed on a ring right above the focusing ring.  It looks
like this:


22 16 11 8 5,6 4 2 4 5,6 8 11 16.

The distance ring is below this scale.  First set your f/stop.  Let's say
it's f/8.  Then focus your camera.  Now look at both your depth – of – field
scale and your distance scale.  The distances that fall between the two f/8's
on the depth – of – field scale indicate how much of your picture will
be in focus.


For exampele

Depth of field

22 16 11 8 5,6 4 2 4 5,6 8 11 16 22

Distance in Feet
        50 30 15 10 7 5 3 1.5 1.2


If the f/stop is f/8 , everthing from 50 feet to 3 feet would be in focus.
If you f/stop is 5.6 everthing from 30 feet to about 6 feet would be in
focus, and so on.

Remember:  your depth of field also depends on the lens you're using.


5.  Lenses.

   (1)  Normal lens

        It's called " normal " because it has a normal fooal length
        (average depth of field) and because it has the most "normal"
        field of view ...... that is, it sees roughly the same thing
        your eye does.

        Also, this id probably the lens you may "normally" use for
        many of your pictures.  It has little distortion, the angle of
        view is pleasing and practical.  It has good depth of field, yet
        you can usually move close enough to your subject to get rid
        of distracting elements.  It's usually a pretty "fast" lens.

   *    When to use

        The normal lens is especially good for medium shots of people,
        and you can move in for close-ups.  It's also good for landscapes
        if you don't want or need the wide field of vision that the wide
        -angle lens can give you.  This is a very good all-around lens.

        Normal lenses run from 44mm to 58mm on 35mm cameras.


   (2)  Wide – angle lens.
        Has a short focal length and excellent depth of field.  It gives
        a very wide field of view.  This field of view also brings with
        it several kinds of distortion, which can be good or bad .......
        depending on what you're trying to achieve with your photograph.
        The wide-angle lens exaggerates perspective; it makes things in
        the foreground look larger than they should......they seem almost
        to loom up out of the picture.  The wide-angle lens also exaggerates
        space relationships.  It makes the distance between objects look
        farther than it really is.

A third kind of distortion can be noticed when photographing a building, room, or anything with straight lines. Wide-angle lenses tend to make straight lines bend, or "keystone" toward the center of the photograph. Again, this can be good or bad, depending on the effect you want.

The wide-angle lens has several other advantages in addition to its wide field of view or perhaps we should say because of its wide field of view. Wide-angle lenses minimize the blur caused by movement of the camera or the subject. It's easy to take good, sharp hand-held photos with a wide-angle lens and you can do this while using a slower shutter speed than you would with other lenses.

\* When to use

When you need to "get it all in"and the normal lens wont't do the job. For example it's great for landscapes, cityscapes and rooms. You can get in all the relatives around the christmas tree, or all of the front of your house and garden in the same shot. It's great when you want to exaggerate something for effect. If you want to make something in the foreground look large and imposing, or if you want to make two objects look far away fron each other.

Wide-angle lenses are good when you need depth of field, or you have to use a slow shutter speed.

They also help when you find it hard to hold the camera steady.......
as in a moving train, for instance.

These lenses are also good for photographing near-by action.

3. Telephoto lenses.

Have a long focal length, so they have very limited depth of field. Focus is critical; be sure you focus on exactly what you want. The field of vision is very narrow; you can see only a small part of what you could see with a normal lens, and just a fraction of what you can see with a wide-angle lens.

There is also distortion with this lens. It tends to compress distance ........make things look closer together than they really are.

Telephoto lenses also emphasize both camera movement and subject movement. Don't try to hand-hold a telephoto lens at anything less than 1/125 of a second.

\* When to use

When you want to photograph objects which are very far away, and which you can't get to (lions in a cage, for instance).

When you want to photograph soemthing and don't want to be seen.

When you don't want the whole picture in focus. for instance, medium telephoto lenses (75mm to 90mm) are great for head-and-shoulder, shots and portraits. The people are in focus, but the background is out of focus and is not a distraction at all.

Use a telephoto when you want to copress distance.

Use the telephoto when you want to eliminate distracting elements from a picture, and just focus attention on one thing.

4.  Zoom lenses.

There are lenses with variable focal lengths. That is, one lens may go from 35mm to 80mm. You have, in effect, an infinite number of lenses in one, and your depth of field will very with the focal length you use for each picture.

But, these lenses have real disadvantages. They are much less sharp than lenses with one focal length.

Pictures from the zoom lens will be less sharp and less snappy.

*   When to use

These lenses are used primarily by news photographers who don't have a time to change lenses when a news story is breaking.

5.  CARE OF YOUR LENSES

Never leave to lense of camera anywhere where light and heat and getting wet can get to them.
The worst places are glove compartments or trunks of cars or anywhere near a window.

Protect your lens from bumps and falls, also from fumes, damp places salt spray.

Keep dust and fingerprints off the lens. They're its enemies.

Celan your lenses very gently wtih a camel's hair brush and lens tissue, Never use Kleenex, ordinary tissue or the corner of your shirt. It will scratch the lens coating.

If there are bad smudges on your lens, clean it gently with lens cleaning fluid. Rub the lens softly with a circular motion. But use this lens cleaner sparingly. The fewer things that touch or rub the surface of the lens, the better.

1. Photographing of patterns and titles.

    1. Necessary Materials

      Camera
      Lens (Micro lens) or close-up equipment
      Exposure meter
      Release
      Copy stand
      Two white flood lumps
      Filter (B-5 or LBC -12)
      Equipment to cut off light (lamp cage, black paper)
      Daylight type color slide film.

    2. Points of photographing.

      a. Photographing should be taken place indoors where cut-off
         the light is possible. Outdoor, the amount and the color
         of light is unstable.

      b. Put the pattern on the stage and fix the camera on the copy
         stand.

      c. Light axis of the lens must be positioned just at the same
         level of the centre of the pattern.

      d. Make space along the edge of the finder. Edge will be covered
         by mount frame later.

      e. Light must come from both sides by 45 degress. Avoid the
         shining.

      f. Adjust the even light on every part of the pattern by exposure
         meter.

      g. Put the filter (LBC - 12) on the lens, or put the filter (B-5)
         ont the lamp.

      h. Set the iris F - 11 or F - 16. Shutter speed is decided by
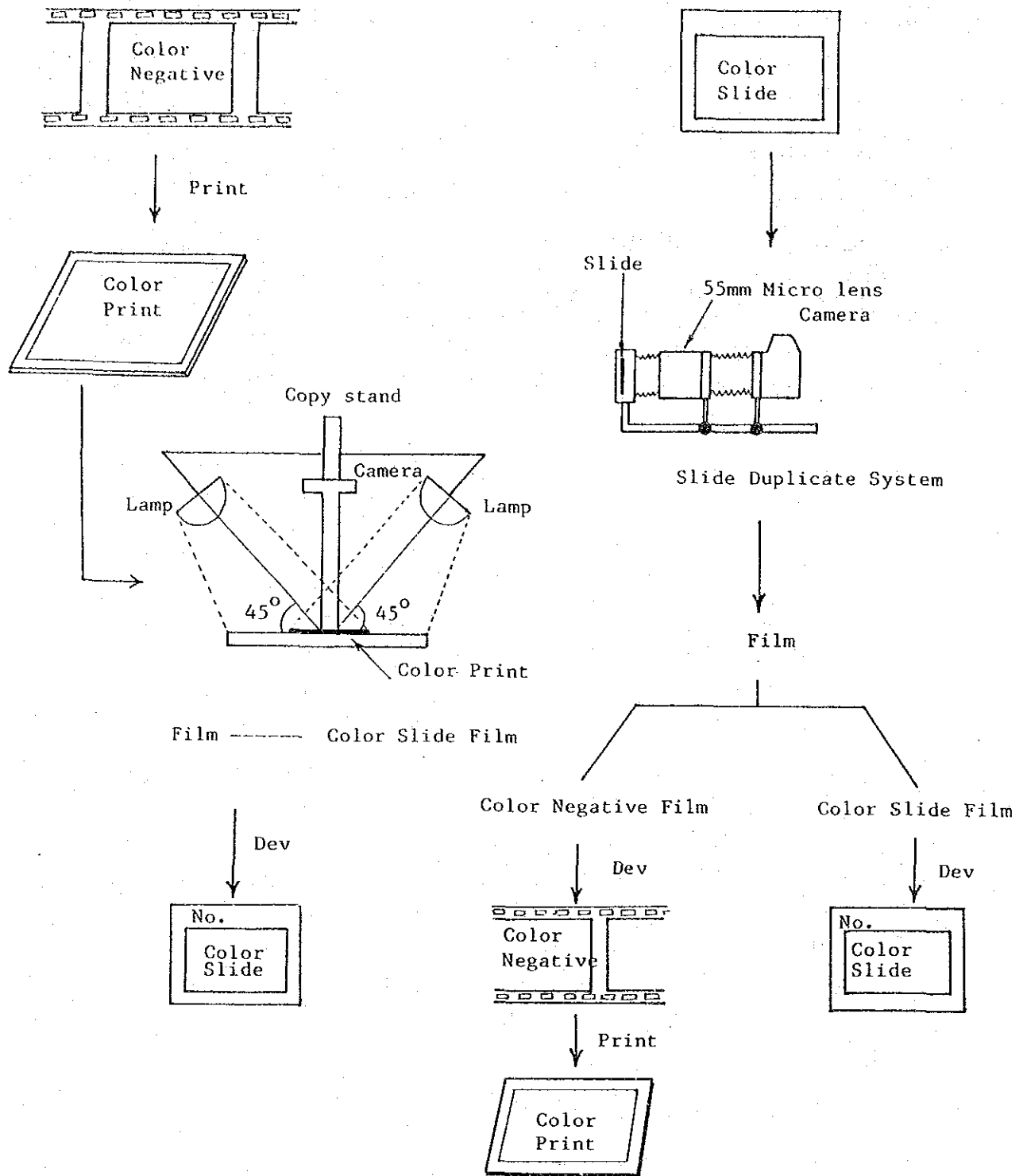         the exposure meter.

         * If you use the filter (LBC-12), you must decide the shutter
           speed by the exposure multiple.

(Example)

      Measured value F - 11, 1/15 second.
      Exposure multiple x 4
      Decision       F - 11, ¼ second.

      i. Photographing

      j. When you put a sheet of glass on the pattern for fixing, avoid
         the reflection of camera, hand, release, etc. on the glass.

Color Negative

Print

Color Print

Copy stand

Camera

Lamp          Lamp

45°    45°

Color Print

Film ------ Color Slide Film

Dev

No.

Color Slide

Color Slide

Slide          55mm Micro lens
                      Camera

Slide Duplicate System

Film

Color Negative Film          Color Slide Film

Dev                                    Dev

Color Negative                    No.

                                            Color Slide

Print

Color Print

2. Compiling

(1) Necessary material

    a.    Slide projector.

    b.    Materials for the mount.
            Paper mount for one original.
            Glass mount for dividing the frame.

    c.    White gloves.
            Avoid from the finger prints.

    d.    Slide file.
            Any type will do.

(2) Selection

    a.    Use 3 - 5 frames of film for one scene, take immovable
            objects such as manufactured goods or commercial goods
            from different angles at various distance.

            Try to take as ;many pictures as you can (within allowable
            limit) in succession in case of the snap-short.

            If you try to spare using films, you can not expect good
            result.

    b.    In such cases where the object has very strong contrast,
            too bright or too dark, even meter can not indicate
            correct exposure. Under such a circumstance, try to
            adjust your camera to the best possible angle and
            location with meter indication, or 2/3 under exposure
            or over exposure of the meter indication. One of these
            three pictures will be successful.

    c.    For photographing patterns and titles, no allowable
            amout of film.

    d.    In this way, you can make many originals per one cut,
            then you choose the best one.

    e.    Condition of selection.
            Content must accord with senario.
            Even if the composition, tone, and object are very good,
            you have to throw away when there's no accordance.

(3) Arranging in order

Arrange the selected originals according to the order of cuts
of senario.
Use slide file.

(4) Showing and checking.

Show in order, read senario, check accordance between them.

(5) Re-photographing.

If you find any mistake in the meaning or contents of original or technique of photographing, you need re-photographing. Don't hesitate to do so, it's not shame at all.

Causes for mistake.

. disaccordance ..... photographing without understanding senario, directions are not proper, bad position and angle of camera, lack of preparation, error in procedure.

. photographic error ..... out of focus, blur, bad exposure, balance of color is not good.

(6) Showing and checking     O.K.

(7) Recording.

. Recording equipment

casette tape or open reel
casette tape ..... impossible for compiling, noise when stop and start.
Open reel ........ cutting and connecting of tape, not convenient for carrying.

. Place for recording

Quite room where you can cut off the noise.
No revibration by the wall.

. Comment-script making.

. Actual recording (by casette tape)

a.   exercise before recording
     read the comment script loud and repeatedly.

b.   set the microphone 30 cm away from you mouth.

c.   as you talk with your friends. (too loud voice is not good).

d.   interval between cuts should be about 3 second.

e.   if you make mistake, go back to the beginning of the cut.  Don't go back to the very beginning.

(8)  Music

a.  record player or casette player and mixing equipment.

b.  to play background music from the beginning till the end
is proper or not?

It might weaken the impression of the comment.

c.  to put music at the beginning and the end and when
chapter changes is effective.

d.  the volume of background music must be lower than that
of comment.

(9)  Composition, Superimpose

An explanation of the orthodox way is omitted here as it
requires high techniques.

(1)  Division of the scene (two)
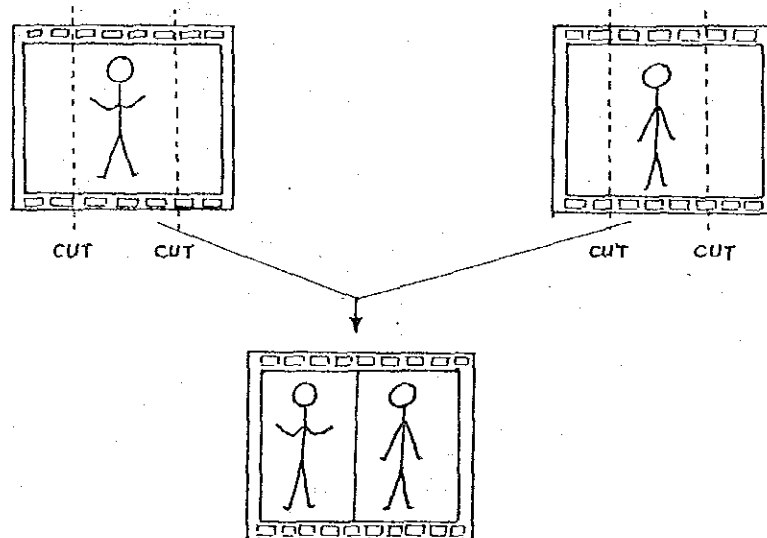


a.  Take pictures by setting an object so as to come within
the range of a half of the finder.

b.  These two original pictures are cut by meeting each other
and are pasted on the same mount.  Overlapping the edges
or leaving some space depends on your preference.

c.  The use of glass-mount is better.  A paper mount is easy
to roll up by heat when projected.

d.  Inserting letters on the pictures is carried out in the
same way.

e.  Division by pattern and a picture is also effective.

f. Division into three parts is carried out in the same way. However, division into too many parts is difficult and not effective.

(2) Superimpose (arrow, etc.)

a. Take pictures of objects with a color negative film and print on color printing paper.
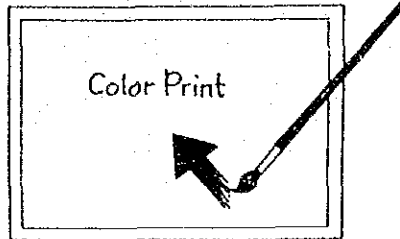


b. White in poster-color on printing paper.

c. Copy it with a color slide film. The method is the same as that of photographing of drawing.

d. If an object is bright, and black letters are outstanding, the following method is recommended.

    i) Project the mounted original pictures on the wall by a slide projector. The size should be A-4. An enlarger is useful.

    ii) Attach a B-4 sized black paper to the projected plane
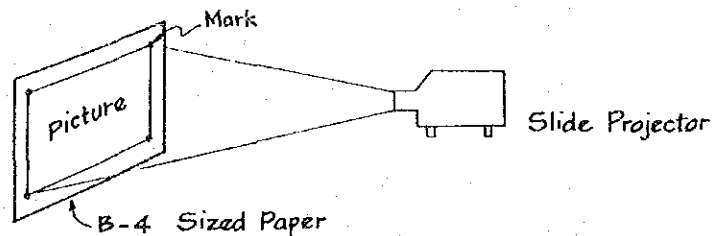


    iii) Mark the frame of the projected picture in a pencil by using a rule. Tracing the image in a picture isn't necessary.

iv) Mark the position and the size of arrows, letters, etc. which should be inserted faintly in a pencil-layout.
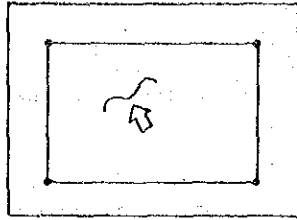


v) Take out the black paper and write in white poster color on the desk.

vi) Copy it with a maniature copy film. Set the frame line marked in the process iii) so as to come into a finder with a bit margin in case of Nikon F. Take your pictures at five different exposure conditions.

vii) Cut the developed film and mount it with original pictures.



Original Film　　　　　　　　　　Copy Film
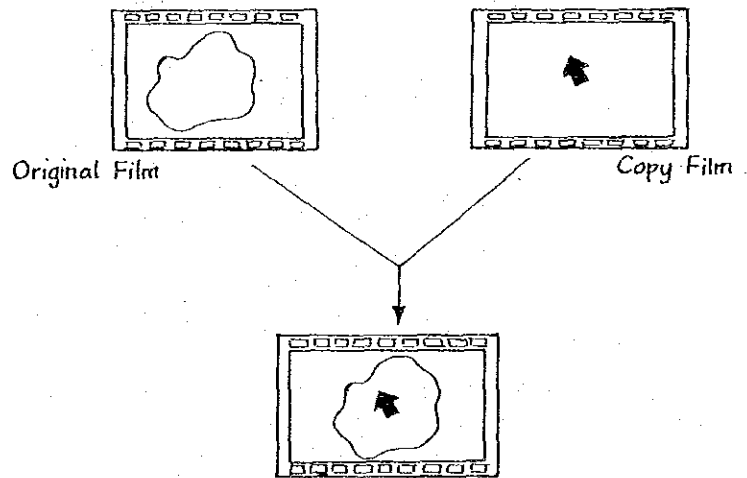
(10) Slide projection

(1) Project all the slides without a stop. Additional explanation is inserted later.

(2) Be sure to prepare a written senario – in order to correct mistakes in both manual and automatic operation.

(3) It will be understood how important a senario is after examination of projection. It will be also understood that too much explanation lessens the effect.

The contents of Developer Kit

| First Developer | RD – A | (Primary diveloper) | a bag |
| | RD – B | (Supportive solution) | a bottle (250ml) |
| Stopper Reversalbath | REB | | a bottle ₤100ml) |
| Color Developer | CDP – A | (Primary developer) | a bag |
| | CDP – B | (Supportive solution) | a bottle (250ml) |
| Bleach and Fixer | BF – A | (Powder) | a bag |
| | BF – B | (Solution) | a bottle (250ml) |

I.  How to prepare developers.

1-1 First Developer (RD)

1.  Dissolve a bag of RD – A in 250ml of warm water (288–32°C)
    The color of the solution becomes colorless and clear.

    Notes:  Even if the RD – A is not dissolve perfectly, it will be
    dissolve easily when RD – B solution is added.)

2.  Add RD – B solution (250ml) into above solution, and stir well.
    (Total amount of solution is 500ml)

1-2 Stopper Reversal bath RFB solution.

1.  Add RFB solution (100ml) into 400ml of warm water (28–32°C).
    (Total amount of solution is 500ml)

    The solution becomes colorless.  The Reversal bath solution right
    becomes milk white as it is used.

1-3 Color Developer Solution (CDP)

1.  Dissolve CDP – A powder (a bag) in warm water (28–32°C)  The color
    will be light pink.

2.  Add CDP – B solution (250ml) into the above solution, and stir
    well.  (The total amount of solution is 500ml)
    When CDP – B solution is added, the color becomes light yellow).

1-4 Bleach and Fixer Solution (BF)

1.  Dissolve BF – A powder (a bag) in 200ml of warm water.
    The color becomes brown.

2. Add BF – B solution (250ml) into the above solution and stir well then add some water so that the total amount of solution becomes 500ml. When BF – B solution is added, the color of the solution becomes red-brown.

   Notes: Ever if BF – A solution is not dissolve perfectly it will be dissolve easily when BF – B solution is added.

II. The process of developing and its temperature and time.

In a dark room

| Process | Temperature (°C) | Tinic (min) | | | Results |
|---|---|---|---|---|---|
| First Developer (RD) | 351 0.5 | insens-tization | normal | sensiti-zation | black and White negative |
| | | 5" min | 7" min | 9" min | |
| Wash (under running water) | 25 – 35 | (25°C)  4 – 2  (35 °C) | | | as above |
| Stopper-reserval bath | 35 + 0.5 | 3 " | | | surface becomes gray. |

Under the light

| Reverse additional exposure. | (Notes: See No.4 Notes on treatment below) | | |
|---|---|---|---|
| ? | After compecting reversal bath (25 – 35°C) wash for 30 seconds. | | |
| Color development (CDP) | 35 + 2 − | 10 " | Surface becomes black |
| Wash | 25 – 35 | ½ " (30 see) | as above |
| Bleach and fixer (BF) | 35 + 2 − | 8 " | The color is unclean milk white when it's wet and becomes clear when it get dry. |
| Washing under the running water | 25 – 35 | (25 C) 7" – 5(35°C) | |
| drying | Notes: Before drying it, it is better to soak in the solution which avoid waterdrops for 30 second | | |

(Note 1)

In sensitized development, when First developer is used for 9 minutes,
senstization will be occursed as VED (ASA 200) becomes ASA 400, and
EL (ASA 400) becomes ASA 800.


(Note 2)
If First Development lasts for 5 minutes, insensitization will be
occured as ASA 200 becomes ASA 100.


(Note 3)
"In a dark room" means that the film must placed under completely dark.
"Unoler the light" means that developing process could be made when
the lid of a developer tank is took off.


## Notes on the process of Posi Color 6

1. First Developer (RD 7 min) 35$^{\circ}$C ∓ 0.5 oC

   Pour RD solution which heated to 35$^{\circ}$C into inlet of a developer tank.
   The tank itself should be heated to 35$^{\circ}$C.

   Stir continuous for first 30 seconds, then stir for 10 seconds at every
   30 seconds.

   The developing time for normal sensitivity is 7 minutes. (Notes) If
   the belt is used, stir first 60 seconds continuously, then stir for
   10 seconds at every 30 seconds.

   After 7 minutes passed, pour off RD solution from outlet immediately.


2. Wash   (3min)

   Pour warm water (25 - 35$^{\circ}$C) from inlet into a developing tank. Until
   it becomes full.   Then turn over the tank and let the water flow out.
   Do this procedur once more.   Pour warm water into the tank again, and
   stir for 15 seconds at every 30 seconds.   This procedure is done for
   2 minutes.   Than flow the all water out from the tank.


3. Reversal bath (RFB 3 min).

   Pour RFB solution which heated to 35$^{\circ}$C into the tank at once.   Stir
   it for first 30 seconds continuously, then stir for 10 seconds at
   every 30 seconds, as you did  for first developer.

   Stopper Reversal Bath takes 3 minutes when it finished open a lid of
   the tank, and return the RFB solution into the origenal container.


4. Reverse additional exposure.

   In order to make reverse effect perfectily, allow additional exposure,
   from both sides to the film as it is rolled on a reel.   This procedure
   could be made a bow of electric bulb located 50 cm of distance from
   the film and the exposure, time would be 1 - 5 minutes only.

5. Color Developer CDP (0 min) $35^{\circ}C + 2^{\circ}C$.

Stir first 30 seconds continuously, then stir for 10 seconds at every 30 sec. This procedure must be done with $35^{\circ}C + 2^{\circ}C$ for 10 minutes. After 10 minutes, CDP solution will be returned to the original container.

6. Wash

Change the water in the tank two or three times completely.

7. Bleach and Fixer (BF 10 min) $35^{\circ}C$ I $2^{\circ}C$

Stir for 10 seconds at every 30 second for 8 minutes. "Ektachrome 200" is a high sensitirity film which contains much silver, therefore desilverization may not sufficient by 5 minute stirring according to the way to stir. The base is abserved as too dark, Bleach and Fixer must be continued. It won't take more than 10 minutes, but this procedure can be prolonged.

Ektachrome 64 and 160 need 8 minutes for bleach and fixer. Completing this proceduce, wash the film under the running water for 6 minutes.

III. Capacity for treatment.

Table 1 shows the number of rolls of film which can be developer with 500ml of the solution under the suggested temperature.

Table 1

| Size | Number of film rolls |
|---|---|
| 110 – 20 EX | 13 – 14 |
| 828 | 12 – 13 |
| 126 – 20 EX | 8 – 9 |
| 12 n | 6 |
| 135 – 20 EX | 6 – 7 |
| 135 – 36 EX | 5 – 6 |
| 120 – 620 | 4 – 5 |

Table 2 shows the solution will get fatigue according to the number of film rolls and the storage time.
The required time for First developing (RD), and color developing is extending.

Table 2

The number of film rolls which can be treated and the required time for developing.

| Film size | RD or CDP | The required time for developing. | | |
|---|---|---|---|---|
| | | 1 – 7 rolls | 8 – 11 rolls | 12 – 13 rolls |
| 110 – 20 EX | RD | 7 ' 00 " | 7 ' 30 " | 8' 00" |
| | CDP | 10' 00" | 11' 00" | 12' 00" |
| | | 1 – 5 rolls | 6 – 9 rolls | 10 – 13 rolls |
| 828 | RD | 7' 00" | 7' 30" | 8' 00" |
| | CDP | 10' 00" | 11' 00" | 12' 00" |
| | | 1 – 4 rolls | 5 – 7 rolls | 8 – 9 rolls |
| 126 – 20 EX | RD | 7' 00" | 7' 30" | 8' 00" |
| | CDP | 10' 00" | 11' 00" | 12' 00" |
| | | 1 – 3 rolls | 4 – 5 rolls | 6 rolls |
| 127 | RD | 7' 00" | 7' 30" | 8' 00" |
| | CDP | 10' 00" | 11' 00" | 12' 00" |
| | | 1 – 3 rolls | 3 – 5 rolls | 6 – 7 rolls |
| 135 – 20 EX | RD | 7' 00" | 7' 30" | 8' 00" |
| | CDP | 10' 00" | 11' 00" | 12' 00" |
| | | 1 – 2 rolls | 3 – 4 rolls | 5 – 6 rolls |
| 135 – 36 EX | RD | 7' 00" | 7' 30" | 8' 00" |
| | CDP | 10' 00" | 11' 00" | 12' 00" |
| | | 1 – 3 rolls | 4 – 5 rolls | |
| 120 – 620 | RD | 7' 00" | 7' 30" | |
| | CDP | 10' 00" | 11' 00" | |

(Notes)

In case of sensitization, required time for RD needs to add 2 minutes more. In case of insenstization, required time for RD needs to subtract 2 minutes from the time in table 2.

## Basic movement of Video Camera

1. Fix shot
   The fundamental camerawork is "don't move it", that is to take
   the subject by a fixed camera.
   And this is most often used. you can have the viewers watch the
   subject with much attention.

2. Panning
   This is to move the camera horizontally.

3. Tilting
   This is to move the camera vertically.
   Panning and tilting are used when you shoot wide and tall subjects,
   or when you like to show the relationship of two subjects.
   It is suggested to stop the camera and take still scenes for
   5 seconds each before and after you move the camera.
   Please move the camera carefully and slowly.

4. Zooming
   When you zoom up a part, the part will be emphasized.
   Zoom back, you can show the relationship between the part and
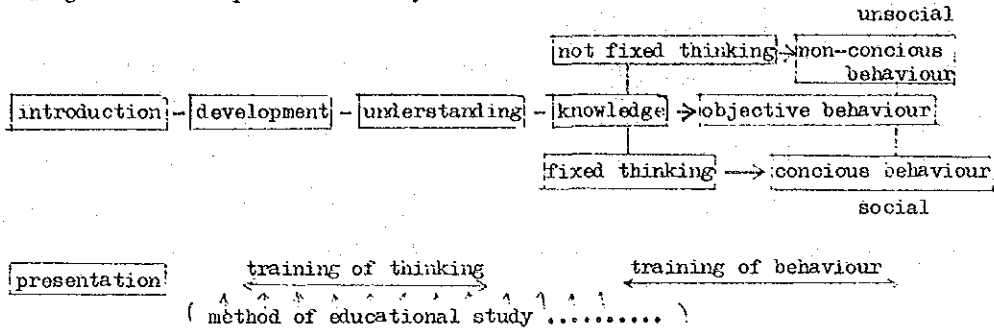   the surroundings.
   At the beginning and ending of zooming, 5 seconds still scenes
   should be taken.

Educational function and practical use of O.H.P.
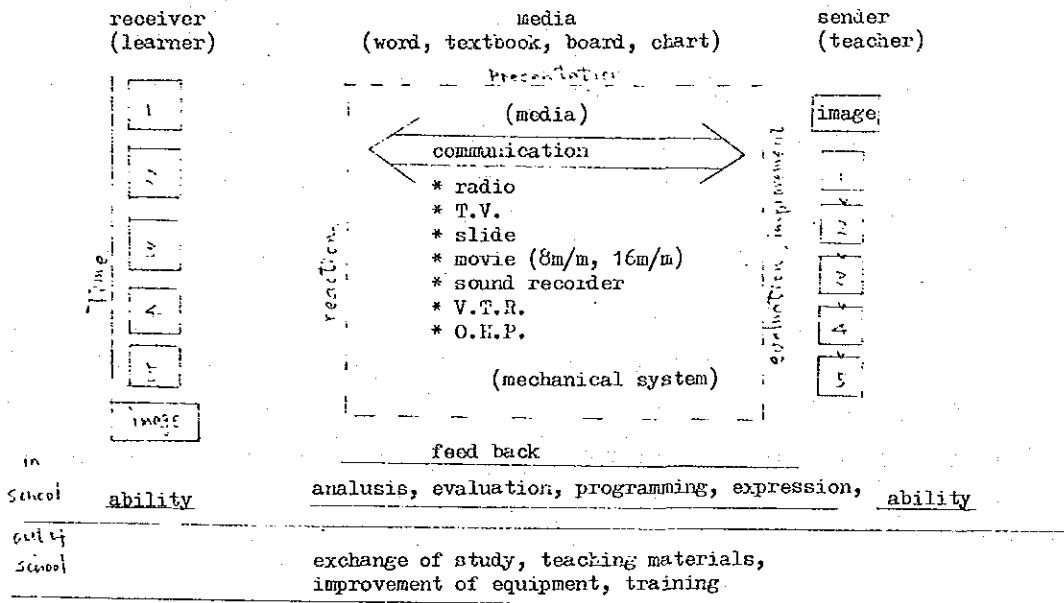
— How to make Transparency of O.H.P. —

1. Role and function of A.V. teaching materials in the educational study

(1) Educational study and A.V. teaching materials
(2) Educational study and O.H.P. (position of OHP in the process of study)

—Diagram 1 — The process of study

```
                                                              unsocial
                                   ┌──────────────────┬─ non-concious
                                   │not fixed thinking│     behaviour
                                   └──────────────────┘
┌────────────┐  ┌───────────┐  ┌─────────────┐  ┌─────────┐  ┌──────────────────┐
│introduction│─│development│─│understanding│─│knowledge│→│objective behaviour│
└────────────┘  └───────────┘  └─────────────┘  └─────────┘  └──────────────────┘
                                   ┌─────────────┐        ┌─────────────────┐
                                   │fixed thinking│──→ │concious behaviour│
                                   └─────────────┘        └─────────────────┘
                                                                 social
```

```
┌────────────┐      training of thinking          training of behaviour
│presentation│     ←─────────────────→         ←───────────────────→
└────────────┘
              ( method of educational study ........... )
```

Process of study communication

```
receiver                    media                    sender
(learner)          (word, textbook, board, chart)    (teacher)
                    _ _ _ _ Presentation _ _ _ _
┌─────┐            ┌                            ┐      ┌─────┐
│  1  │            │          (media)           │      │image│
├─────┤            │  ← communication →         │      ├─────┤
│  2  │            │     * radio                │      │  1  │
├─────┤            │     * T.V.                 │      ├─────┤
│  3  │            │     * slide                │      │  2  │
├─────┤            │     * movie (8m/m, 16m/m)  │      ├─────┤
│  4  │            │     * sound recorder       │      │  3  │
├─────┤            │     * V.T.R.               │      ├─────┤
│  5  │            │     * O.H.P.               │      │  4  │
└─────┘            │                            │      ├─────┤
┌─────┐            │      (mechanical system)   │      │  5  │
│image│            └ _ _ _ _ _ _ _ _ _ _ _ _ _ _┘      └─────┘
└─────┘                    feed back
```

in
School   ability      analusis, evaluation, programming, expression,   ability
out of
School                exchange of study, teaching materials,
                      improvement of equipment, training
```

2. Educational function of O.H.P. and its characteristics in guidance of study

(1) Merit of O.H.P. (in communication of information)

a) large size projection
b) to be able to face the audience
c) projection    a bright room
d) audience and teacher see the projection together
e) various and flexible utilization
f) Teacher can easily prepare his own materials
g) possibility of individual expression and communication

(2) Educational characteristics of O.H.P.

a) to strengthen stimulus by projection
b) to strengthen mutual stimulus among a group
c) to promote deep thinking
d) to strengthen training og thinking
e) to promote creative thinking
f) to promote active behaviour
g) to strengthen fixed thinking

(3) Learning characteristics of O.H.P.

a) proposal projection for study, etc
b) proposal projection for raising questions
c) proposal projection for discussion
d) proposal projection for confirmation of problem
e) proposal projection for prompt confirmation
f) proposal projection to promote thinking
g) proposal projection for training of thinking
h) confirmation of contents by sequent projection(presentation) of
   incomplete teaching materials
i) confirmation of phenomena by projection of actual objects
j) proposal projection to strengthen mutual communication

(4) The method of expression of O.H.P.

a) extraction method
b) chart method
c)
d) dissolving
e) writing and erasing projection
f) partial projection
g) moving projection
h) flash projection

3. How to make sheet for O.H.P.

(1) Planning

  a) making plan (setting a goal)
  b) setting idea (setting contents)
  c) making layout (making contents actual)
  d) balance of a whole screen
  e) forcusing contents of communication
  f) simplification of letters and chart
  g) form of letters and chart
  h) setting colors of letters and chart
  i) setting expression method
  j) arrangement for making sheet

(2) Relationship between distance of projection and size of letter

(3) How to make sheet

| | method | materials, equipment, machine | |
| --- | --- | --- | --- |
| | | kind of sheet | material, equipment |
| drawing | hand writing, quick lettering, typeing | plastics sheet, graph paper, cellophane role, | T.P. color pen (water dissolve, oil dissolve) color sheet, instant lettering pen (set), compus, |
| copying | photographing method (enlargement, reduction) | chart film | equipment for close-up and enlargement |
| | | color foil | copy machine |
| | method by copy machine | thermo setting sheet | copy machine (ultra violet) |
| | | PPC sheet | copy machine (PPC) |
| | | T.P. sheet | Strobo flash |
| moving method | plane model transparent object | acryl sheet | |
| | non-transparent object | celluloid sheet | combination of the above |
| | using polarized sheet | polarized sheet | |