

1. Visual Informations and Learning Objectives

In a lecture as to vocational training, the visual informations of figures /letters are presented often using OHP (OverHead Projector). It is used based upon the knowledge that it is more effective in order to present figure – related educational information such as the figure of the structure of a machine. Suppose to let a student understand the global crosssection of a land as shown in Fig. 1. It is clear that Fig (b) is understandable than the numeric data as shown in Fig.(a). Understandability of a visual information, in general, depends upon how they are well formed. As a matter of fact, presenting a TP (transparency) describing so many small letters or a messy figure will be less effective although it may be called as AV usage.

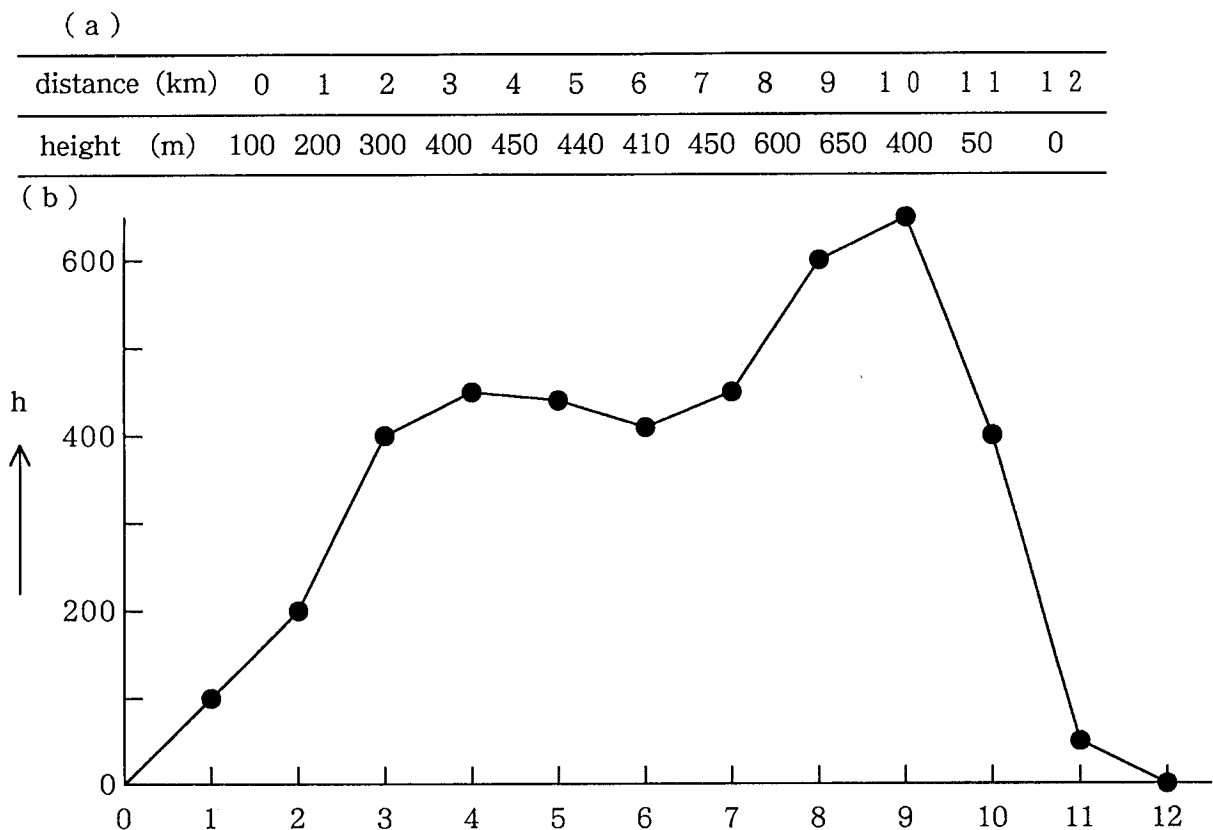


Fig. 1

Thus, in order that an AV media such as OHP is used effectively, it is required that the material is formed as the content is easily understood

by students. And its forming determines whether the material is “understood” or “easily understood”.

It is not too much to say that, in a vocational training classroom, not only the well formed material but also the well constructed oral explanations are regarded.

Concerning syllabus, a global objective is, in general, divided to several (or sometimes very many) smaller (or in lower levels) learning units but they can be arranged in time series along with the classroom proceeding. It is better to say that the instruction in a classroom ought to proceed according to the arrangement. The classroom proceeding can be expressed as a flowchart. And the teacher makes an instructional strategy for each learning unit to consider the better usage of AV material/equipments.

Through the procedure of teaching activity above, the teacher himself/herself will know the relation between the global learning objectives and the AV media. As a result, the procedure makes it clear under what intention he/she picked up an AV material/equipment. This thinking may lead to the objectivity of the way of the AV usage. The objectivity ought to be regarded in the point if we let the developed material has the generality. Generality here means that it is possible to be used by another teachers widely.

2. Classroom Proceeding and AV Media

Figure 2 shows the relation of learning objectives, classroom proceeding, AV media and so forth. “2.teaching planning” is made from the intended learning objective as described above, and “3.teaching administration” is made based upon the planning, then “4.evaluation of AV media” is made. In the figure, the set of “2.teaching planning”, “3.teaching administration” and “4.evaluation of AV media” corresponds to the teaching – learning cycle in Fig.3.

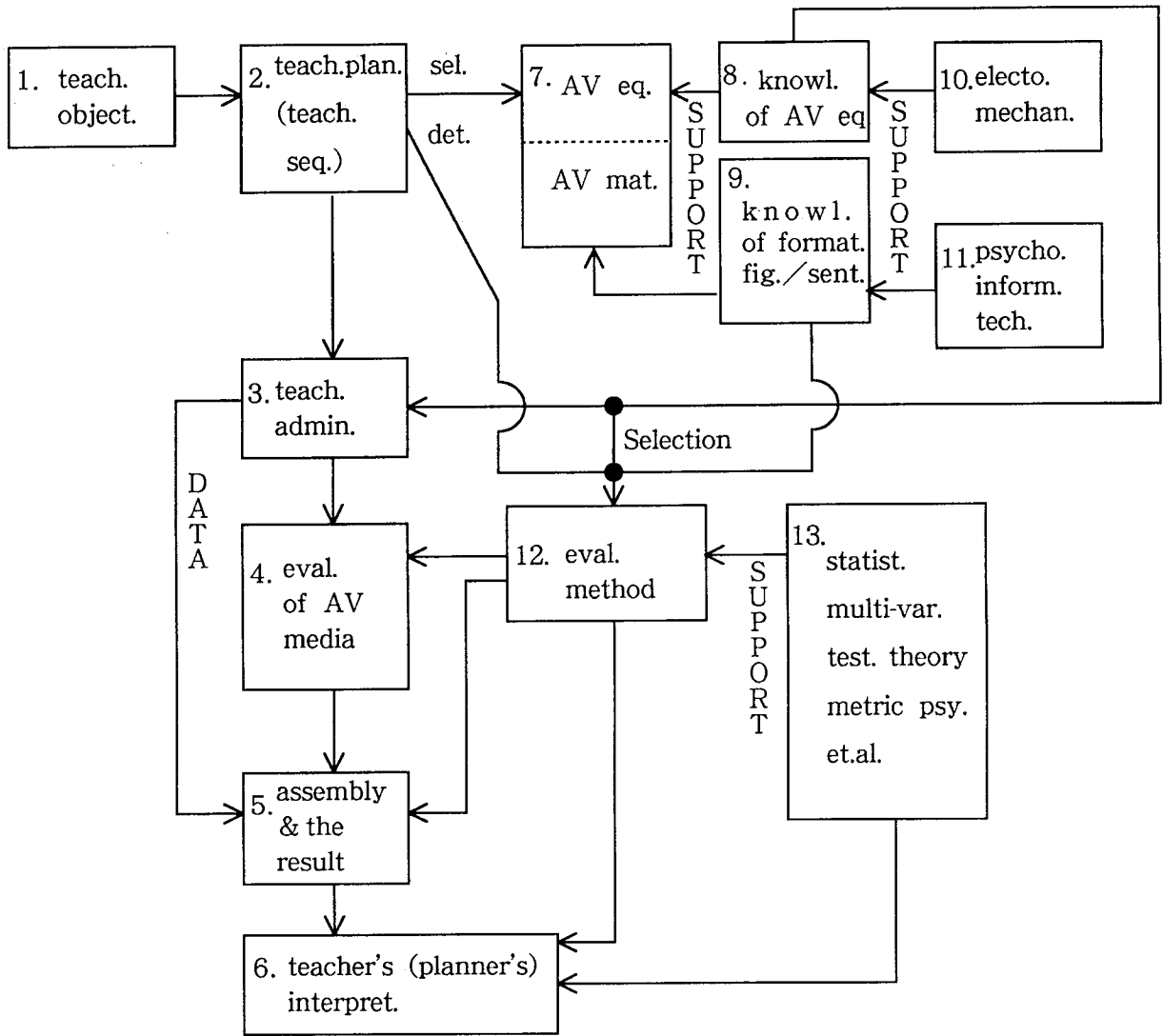


Fig. 2

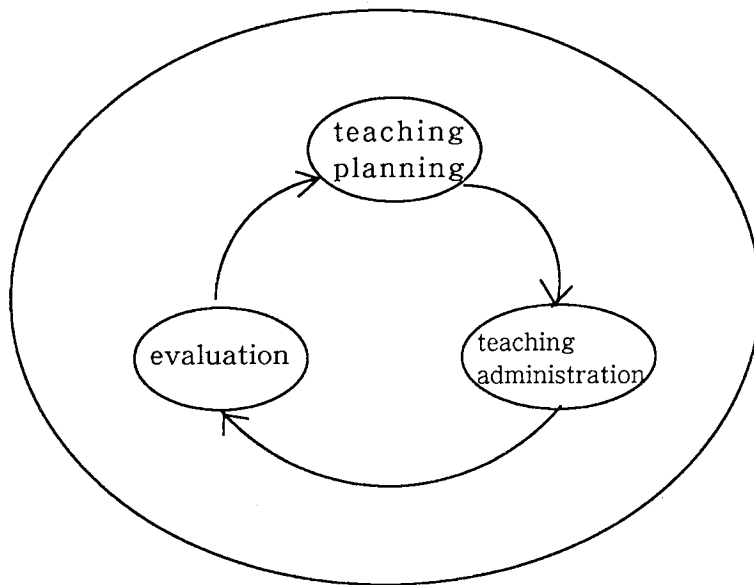


Fig. 3

In “2.teaching planning”, in what part an AV media can be implemented and how an AV material ought to be developed are made clear. In this case, the relevant knowledges get necessary, that is, the knowledge of AV equipment and the knowledge of formatting of figures/sentences.

When an AV material/equipment is used in “3.teaching administration”, the high effective usage is required using “8.knowledge of AV equipment”.

“4.evaluation of AV media” can be replaced by “teaching evaluation” as a matter of terminology. Anyway, the target of the evaluation is “the usage of an AV media”.

As to “12.evaluation method”, there are choices of testing, making questionnaires and the other metric method as tools. Among them, the questionnaires forwarded to the students will be the most popular tool. If the procedure of the relevant data is done under the proposal of a statistics, we have to consider how we construct the questionnaires, i.e., selection of items, scaling and so on.

The answer data assembled is processed through “5.assembly” and the result is “6.interpreted” by the relevant teacher. Then he/she will know the effectiveness of the AV usage to some extent by this objective method.

As shown above, the basic knowledges of an AV usage are much related to, from teaching planning to the evaluation.

Many key – words/key – sentences as to AV usage are summarized later on. If several points in the usage of an AV media are to focussed in a classroom, the correspondent items are chosen as the questionnaire items by referring the “key” and they are to be used for the evaluations.

3. Visual Media and Preparing the Document

The designer, in general, makes a visual media such as a series of TP in the way that it gets along with the real classroom proceedings. In another words, he/she selects the learning informations of visual presentation, constructs

them along his/her own teaching context, and then describes the informations on TPs. So, the context and the series in the media could be optimized in terms of his/her own teaching context.

If the visual media is to be used by another teachers, however, some kinds of supplementary explanation will be needed since the teaching context varies with teachers to some extent. Therefore, if the designer aims the generality in the usage of the media, it is required to be objectively understood under what educational philosophy the media was designed and developed.

In this point, the concept of documentation gets important which means to make clear the educational philosophy supporting an AV media. With the documentation, an another teacher will know what differences there are in both contexts, thus he/she can consider the usage of the media in his/her own classroom as a real matter.

From the above, developed material having generality ought to consist of the followings.

1. teaching planning
2. developed material itself
(i.e. TP)
3. reduced hardcopy of the material
4. management of the material and the relevant equipment

Table 1

<ol style="list-style-type: none"> 1. introduction <ol style="list-style-type: none"> 1a review 1b today's topic 2. development <ol style="list-style-type: none"> 2a lecture 2b experiment 3. summary <ol style="list-style-type: none"> 3a today's summary 3b next topic
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Table 2

(a) the format of teaching planning

subject _____	topic _____	age _____
educational objective (target) _____		

previously learned subjects (topics) required		
_____, _____, _____, _____, _____, _____		
previously learned subjects (topics) desired		
_____, _____, _____, _____, _____, _____		
specified necessary knowledge (words)		
_____, _____, _____, _____, _____, _____		
sort of AV eq./mat. used (average time for its usage in minute)		
_____ (), _____ (), _____ ()		
other specified requisites etc.		

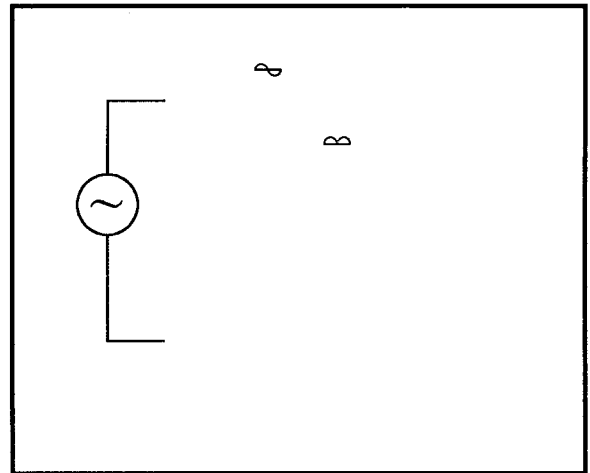
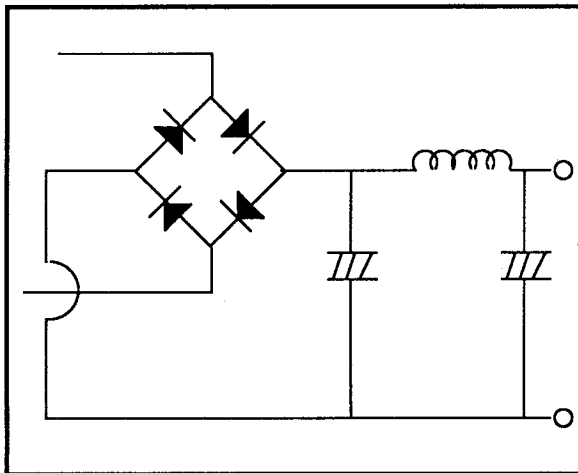
(b) an example of filling out

subject <u>electronics</u>	topic <u>rectifying circuit</u>	age <u>18</u>
educational objective (target) <u>to understand the principle of</u>		
<u>rectifying altnative current to direct current</u>		
previously learned subjects (topics) required		
<u>basic electronics,</u> _____, _____, _____, _____, _____		
previously learned subjects (topics) desired		
<u>structure of radio,</u> _____, _____, _____, _____, _____		
specified necessary knowledge (words)		
<u>coil, capacitor,</u> _____, _____, _____, _____, _____		
sort of AV eq./mat. used (average time for its usage in minute)		
<u>OHP</u> (10) _____ () _____ ()		
other specified requisites etc.		
Roll typed TP is desirable to be, and a pointer will be useful too.		

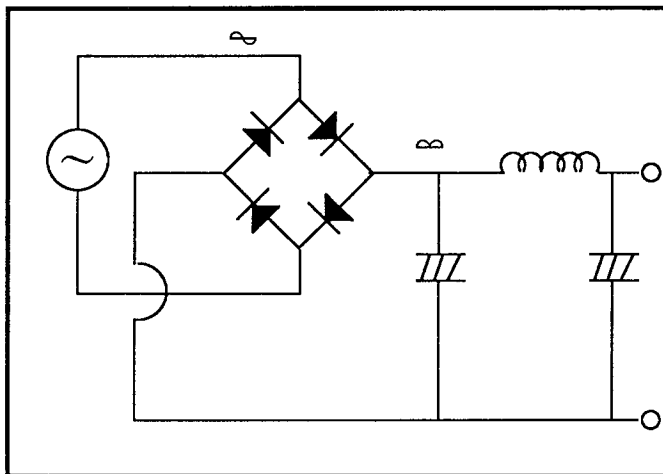
content	mode of present.	the detail	equipment
1a. confirmation of the previous lesson • alternative / direct current • coil • capacitor • diode 1b. today's topic	T's oral (7) ↓ Q & A ↓ T's oral	briefly to ask mainly to the absence of the previous lesson student's attention to the teacher	roll - book
2a. presentation of the bridge of rec. cir. 2a. output status for the static input of + / - 2a. output status for the alter. input 2a. confirmation	T's oral (main TP) (15) ↓ T's oral (main TP) ↓ T's oral (mainTP + subTP)	partial present. of the TP supplement. expla. using roll - sheet overlapping to mark U.G.S., M.G.S and L.G.S. in good balance	TP* ¹ & OHP TP* ¹ & OHP roll - sheet TP* ¹ & OHP score book
2b. physical demonstration • direct cur. • alter. cur.	Q & A (15) ↓ Q & A ↓	to group several students & let each group appreciate the demonstration in turn	pysical model * ² alter. gen. * ³
3a. today's summary 3a. application of the rec. cir. 3b. next lesson's topic	T's oral (8) ↓ Q & A ↓ T's oral	to focus on the alter. input to mark U.G.S	2 - D osc.* ⁴ roll book

* 1 [main TP]

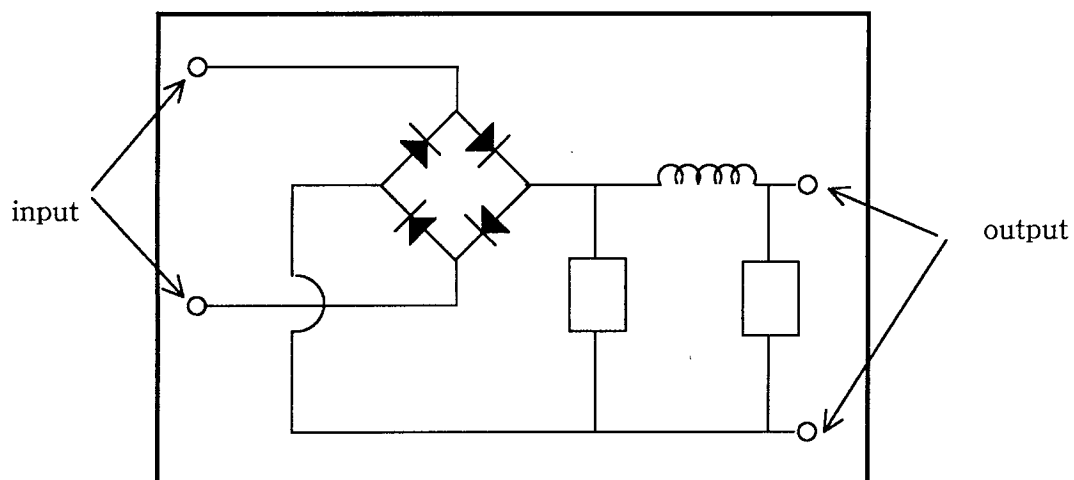
[sub TP]



[overlapped result]



* 2 [physical model of a rectifying circuit]



* 3 alternative voltage generator : The frequency is desirable to be varied

* 4 2 - D oscilloscope : The display screen is desirable to be large.

In this set, teaching planning will be roughly sorted as in Table 1. Table 2 shows a part of the teaching planning. Table 2 (a) shows the format and Table (b) is the example of rectifying circuit in electronics. Table (c) represents the detailed flowchart of the classroom proceeding according to the teaching planning shown in Table (a). By referring Table (b) and (c), we will know the designer's thinking roughly.

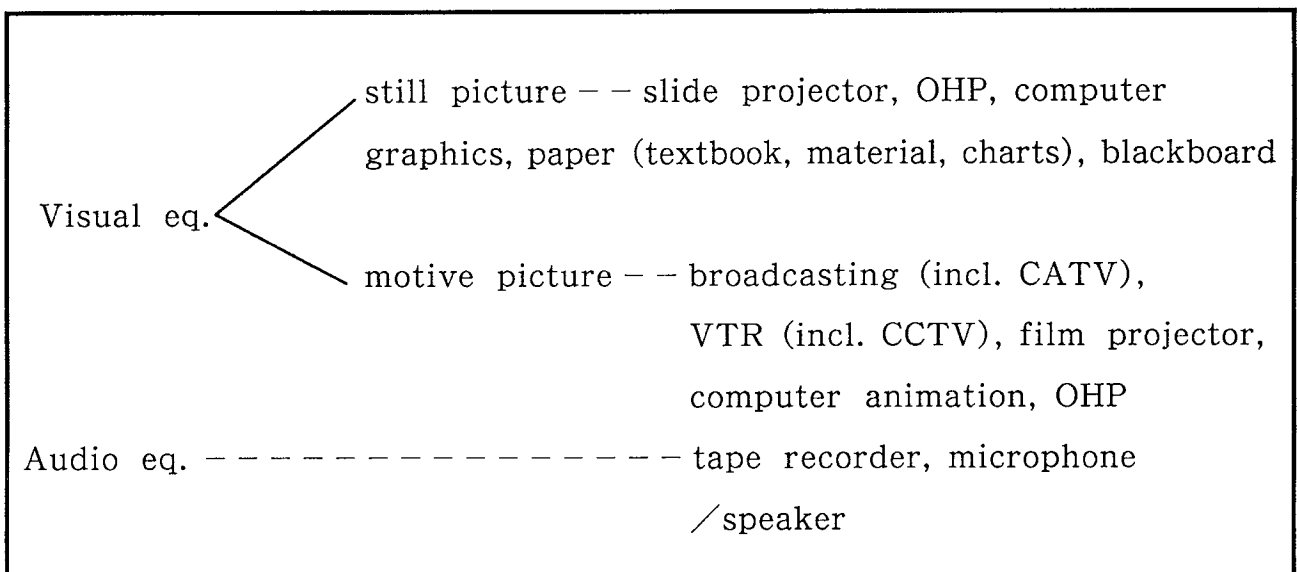
“Reduced hardcopy” means that, for instance, many TPs are hardcopied in small size and sequentially rearranged. With this, the user can see the series of TPs easily at a glance. “Management of the media and the relevant equipment” is necessary only if it requires a special usage.

To make “teaching planning” among 1 thru. 4 above will help the teacher to consider his/her educational essence in the classroom in his/her mind. Besides it, the teaching planning helps the same teacher to remember it easily at another opportunities later on.

4. Sorting the Audio – visual Media

Table 2 represents the classification based upon the two scales of visual – audio and still picture – motive picture.

Table 3



5. To Make, to Use and to Manage an Audio – visual Media

Figure 4 shows how “8. knowledge of formatting figures/sentences” and “9. knowledge of AV equipment” are useful to make, to use and to manage the relevant materials. It shows, for instance, that “to make” is mainly related to the

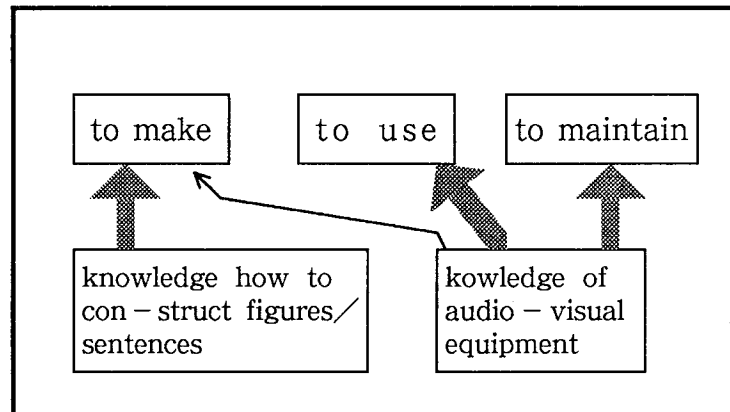


Fig. 4

formatting learning informations such as the description of a figure, making sentences and so on.

We here summarize the procedure/essence for each of “to make”, “to use” and “to manage”.

a. TP

to make – – – writing – made TP

1. to outline figures/sentences in terms of location, bigness, color
2. to complete a TP (to add overlapped TPs)

to make – – – machine – made TP

1. to copy the original pattern
2. to edit it
3. to copy it on a TP
4. to modify it, to add overlapped TPs to it if necessary

to use

1. to determine the bigness of the picture on the screen (to locate the projector and the screen)
2. to focus
3. to darken the inside if necessary

to maintain

- to insert a white paper in two TPs
- to use a TP frame and the title
- to store

b. slide

to make

1. to take pictures
2. to develop the film
3. to mount each film
- (4. to record the audio)

to use

1. to insert films into the cassette
2. to determine the bigness of the picture on the screen (to locate the projector), to focus, to test if it works, to darken the inside by a curtain (to determine the location/direction of the speaker and adjust the volume)

to maintain

1. to describe the relevant information on each slide mount
2. to keep the slides in a box

c. video

to make

1. to take a picture
2. to edit audio – visually (to wipe, to overlap, AFTER RECORDING, Video On Sound), to remove the nail if necessary

to use

1. to determine the location of TVs (to care about a light reflection)
2. to adjust the volume

to maintain

1. to rewind the tape after its usage
2. to insert the tape into the case cover
3. to store in dry and clean air

6. Know – how of the audio – visual media and the characteristic

a. OHP/TP

as to TP making

1. to use colors, to consider the adequateness of colorfulness
2. to use a ruler when necessary
3. to make the lining speed constant
4. to use an eraser
5. to use a frame
6. to select oil – pen/water – pen
7. to cap the pen in tight, not to lose the cap because it is volatile
8. to prepare a TP in advance, thus to help a teacher design the teaching planning

as to presentation

1. to overlap, thus to modify the original pattern
2. to consider the messy operation
3. The teacher always faces to the students.
4. to show a simple dynamic demonstration
5. to use a pointer
6. to consider how to use a colored pointer
7. to take care of the speed of a pointer
8. not to make the presentator's shadow on the screen
9. not to draw on an OHP stage directly
10. to take care of the speed of speech
11. not to scratch the screen by a sharp pole

as to the environment

1. to use in a light room
2. to project a picture largely
3. to keep the classroom clean
4. to cover the OHP stage and to rewind the screen after their usage
5. to break down the electricity after the lamp got coolen
6. to pick up a new lamp by fingers through a soft paper
7. White wall is available in stead of a screen.

b. slide

as to slide making

1. to use colors
2. to use a ruler when necessary
3. to make the lining speed constant
4. to prepare a slide in advance, thus to help a teacher construct the teaching planning

as to presentation

1. to use a pointer
2. to take care of the speed of a pointer
3. not to make the presentator's shadow on the screen
4. to take care of the speed of speech
5. not to scratch the screen by a sharp pole

as to the environment

1. to project a picture largely on a screen
2. to cover the slide projector and rewind the screen after thier usage
3. to break down the electricity after the lamp got coolen
4. White wall is available instead of a screen.

7. How to make figures/sentences ; TP/Slide

We here pick up the viewpoints for making figures/sentences easily understood by students.

a. the usage of the audio – visual information

1. TP's (slide's) information as a compliment of oral information
----- description of figures
2. TP's (slide's) information as a reinforcement of oral information
----- description of the keywords

b. keys of TP (slide) making by handwriting

1. the bigness of letters
2. the boldness of lines
3. drawing method of a figure
4. emphasis on the important parts (Only the emphasis parts ought to be emphasized)
5. smart (non – messy) in the projected area
6. redundancy of the usage of a TP (slide)

c. detailed note on handwriting TP/slide

1. to use a pad and to fix the TP sheet on it by two clips or the like. It is almost the same when making a slide too.
2. to use a ruler (linear, circle, ellipse, square, triangle, bendable, etc.)
 - Linear scales ought to be used as shown in Fig.5 (a) or Fig (b).
 - A ruler should be shifted upwards after its usage. If it is shifted rubbing on the TP, the TP may get dirty.

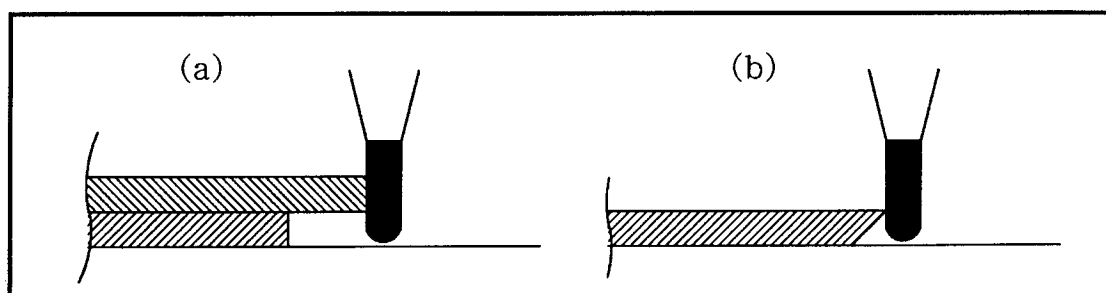


Fig.5

3. (TP only) to paint a region on the back. If not, the ink may blot.
4. (TP only) to stick a colored TP cut without wrinkle
5. (TP only) The bigness of letter is desirable to be larger than 1cm /0.5cm in height/width.
6. Red color is desirable to be used only for the most emphasis.
7. to use a lettering sheet

d. keys of TP (slide) making by copying

1. to prepare the original pattern
2. to determine the magnifying/reducing degree of the pattern.
3. to adjust the density
4. to copy it on a white paper as a trial
5. to copy the pattern on a TP if there is no problem in the procedure of the just above
6. to emphasize the important parts of the figure: ex. boldness, using color
7. to add the supplementary information by letters and figures on it

e. TP making by the copy - machine of SUMITOMO 3 - M

1. to make the original pattern by the conventional copy - machine
2. to cut off the unnecessary parts in the pattern by a scissor if any
3. to select the transparency considering the colorfulness
4. to adjust the density
5. to overlap the pattern on the TP while making notice of the direction the TP (The detail is submitted to the manual)
6. to administrate the copy
7. to let the TP and the pattern be separate

f. brief procedure of making an instant slide (NIHON PORALOID)

1. to prepare the original pattern

2. to fix a poraloid - film in a single - lens reflex camera
3. to prepare the environment such as lighting
4. to take pictures of all patterns
5. to take out the film from the camera
6. to fix the film in the film processor
7. The film is automatically processed.
8. to take out the processed film from the processor
9. to fix the film in slide mountor, to execute the slide - mount