

"THE VISUAL CHANNEL *MUST* BE CONSIDERED BY COURSE DEVELOPERS WHEN PLANNING TRAINING STRATEGY AND IN DEVELOPING COURSE MATERIALS."

# GUIDELINES FOR VISUALS

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*EDITOR'S NOTE: The following is an excerpt from Selecting and Developing Media for Instruction by Ronald H. Anderson. Co-published by ASTD and Van Nostrand Reinhold, this book is a valuable tool for course writers and instructors, managers of training departments, and supervisors of course developing programs. This 138-page book is available for \$10.95 ASTD member/\$14.50 nonmember from the American Society for Training and Development, P.O. Box 5307, Madison, WI 53705.*

Sight is by far the most powerful of the senses through which we perceive the world around us. Research supports this flat statement, although the relative contribution of sight in comparison to the other senses seems to vary according to numerous circumstances. Nevertheless, in this discussion we accept as fact that almost all people depend upon sight as their primary source of information. People are generally conditioned

to keep their visual sense occupied during most waking hours. They continually watch for information, cues, alarms, and items of interest. This primacy of sight has important implications for teaching and learning.

The visual channel *must* be considered by course developers when planning training strategy and in developing course materials. If the course developer doesn't plan to use the visual sense, something or someone else will. There is always the exception, of course: an exceptional person — an orator, perhaps — can catch and maintain audience attention for long periods of time, but these rare people have a special talent for generating visual imagery in the minds of their audiences. But even the golden-tongued orator might find it difficult to keep an audience attentive if he were to lecture on the history of the drill press without some visual assistance.

Think of your experiences listening to lecturers who talked *at* you, thus failing to command your visual sense. When the sense of hearing *only* is bombarded, whe-

ther by a live lecturer or a voice on an audio tape, you — or any audience — will become distracted. Students avoid such punishment by sleeping (turning off the senses of sight and sound) or daydreaming (allowing irrelevant images, real or imaginary, to occupy the mind).

The visual sense is highly discriminating, constantly analyzing visual events to accept or reject new information based upon what is already known. Any visual image that conflicts with our own real world may be summarily rejected and may, thus, present a barrier to learning.

Sight is sensitive to punishment. Generally we are unwilling to tolerate any strain, including illegible or ambiguous visual images or sudden and extreme changes in illumination. We are also inclined to turn off shocking or boring visual displays.

Although materials in books and other forms of print are not of *principal* concern here, visuals are continually used in all kinds of printed matter. The characteristics of printed type displays and

page layouts can be motivational and effective in communicating to students, or they may confuse, bore, or punish.

Therefore, be alert to the problems that may arise because the sense of sight may be mistreated in any instructional presentation to the detriment of student learning.

Here, then, are some rules of thumb to consider when you are designing visuals for instruction. Remember, these are neither laws nor absolutes, but reminders for you. As you conduct developmental testing of your programs, watch for causes of failures because you may have failed to observe one or more of these guidelines.

### Some Rules of Thumb for Visuals

*Visuals used simultaneously with audio materials must be directly relevant to the audio content.*

If the audio presentation carries the principal weight of the content, visuals can inhibit learning if:

- they conflict with what is being presented verbally;
- trivial visuals are used; for example, a visual used just to have something on the screen, or, a simple, instantly grasped visual is left on the screen while the verbal presentation goes on and on, beyond the content of the visual;
- flashy, arty visuals are presented to impress or challenge the viewer; but, the student may be diverted to irrelevant thoughts or emotional reactions.

*Excessive redundancy between visual and audio components should be avoided.*

• If words are visually displayed, the viewers should be given time to read them before the narrator comments or rephrases the projected message.

• If the print on the screen is brief, group reading can be controlled by having the narrator repeat the printed words exactly. But reserve identical or parroted visual and audio verbiage for very brief and important messages to be stressed. Consider the procedure the same as underlining.

*Visual displays should not be punishing.*

• Projected visuals must be legible to minimize student discomfort and frustration. Both clarity

and brightness of images are involved in legibility.

Visuals should not be ambiguous, which means:

• as early in the lesson as possible, unfamiliar objects should be displayed in relation to familiar objects to provide information about size and shape; and

• visuals should not be busy or cluttered, to ensure that the intended communication is clear to the viewers.

*Visuals should not be distasteful to students or to any audience.*

• Since we are assuming that we want to encourage people to change their behavior in desirable ways, we don't want to alienate them; quite the opposite, we want to encourage them and attract them to the subject. Therefore, display of scenes that some students find either morally or emotionally shocking should be avoided or, at least, used with great care, and the results checked. You may have objectives that you believe can be met only by jolting your audience; in such cases you may have serious

problems. Use even humor with care and judgment, and test the results.

Because motion visuals (film and video) are generally considered effective media for producing attitudinal changes, and because they are also expensive, errors in judgment in their use can be deeply regretted.

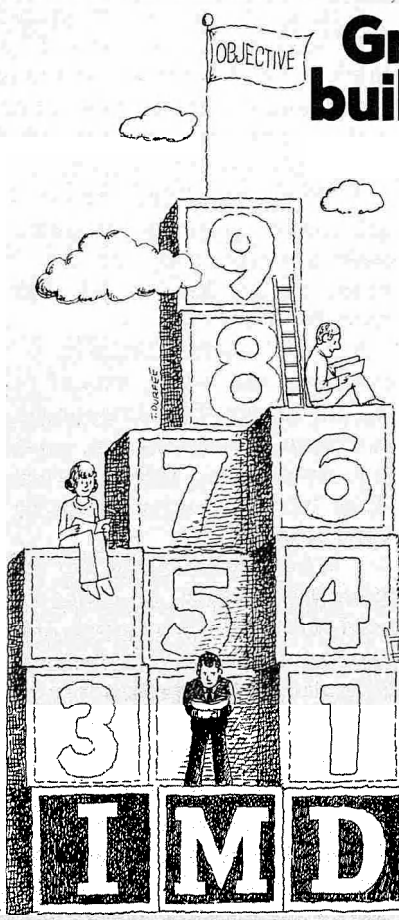
*Visuals representing on-the-job situations must be acceptably realistic.*

All instructional situations should:

• accurately reflect company or institutional policies and practices in such matters as dress, demeanor, work and safety rules, and models of performance;

• show views of persons using tools, instruments, and control equipment, for examples, from the point of view of the person using them on the job. Work environments and situations should, to the greatest degree possible, represent the real world. This does not mean that lesson materials and the learning environment must be ex-

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act replicas of reality to effect desired learning, but conditions representing typical factors that control performance of personnel should be provided.

*Projected visual materials are usually designed to be displayed in a horizontal format.*

- The lower portion of viewing screens in many classrooms is difficult to see from back rows of seats. To overcome this problem, design visuals in horizontal format to keep the bottom of the image as high as possible.

- Students have been conditioned by the media used for entertainment to expect horizontal visuals. Avoid including an occasional vertical format in a series of horizontal visuals — it can be distracting.

- Motion pictures, both film in all sizes and video, have a horizontal format and the proportions are not generally altered, except for widescreen motion pictures or two- or three-screen slide presentations.

*Color, unless required for content, usually adds very little to learning.*

#### **Guidelines for Legibility for All Projected Visuals Except Video**

To determine the size of the projected image in relation to the viewing distance, use the 6W formula: *All projected visuals — excluding video — are based on the premise that one foot of screen width is required for each six feet of viewing distance from the screen.*

This formula is used to determine the proper screen-size-to-room-length ratio in the design of auditoriums and classrooms. For our purposes we will assume that viewing screens or projection walls of adequate size are provided in instructional areas.

Test preliminary artwork or graphics to be projected on the screen *before* they are put on film. Here is the way to make the test:

- a.) Measure *in inches* the width of the artwork or lettering display to be projected.

- b.) Divide your answer by 2.

- c.) Hold the artwork or display that many *feet* away from a viewer and ask him to read the content or to describe the image. If the

viewer is successful, your design is adequate for projection.

*Example:* Your artwork is 10 inches wide; divide it by  $2=5$  inches. Have the viewer read the display from a distance of 5 feet.

*Caution:* Do not read or test the visual yourself; your memory may help you. Select someone to make the test who is completely unfamiliar with the work, and who has reasonably normal vision.

It is obvious that the clarity and sharpness of the original artwork or graphic display affects the quality of the reproduced product — whether on film, in print, or on a video screen. No amount of magic can turn a poor quality image into a good one. Simply put, the idea is — garbage in, garbage out. One major contributor to unclear, distorted, or even weak visuals is *generation loss*, that is, the degradation of image by duplication. The original quality decreases in each succeeding generation. When working with artwork or graphics to be converted for projection, bear in mind the following:

- Avoid using art or graphics that have apparent flaws. If you think a small smudge or erasure mark won't matter, remember it will be many times more evident when enlarged on a screen.

- When possible, use original artwork or graphics, or slides, to make a master copy, or, for short runs, use the original for making each duplicate.

- If the original artwork is not available, use a first master copy, master slides, film internegative, or filmstrip masters for duplicating. Avoid using release prints or other late generation products for duplicating.

- When working with slides mounted in glass, or slides to be used with rear projection, inform your photographic personnel or laboratory. Frequently they can compensate for these conditions and make adjustments to provide optimum image brightness.

#### **Guidelines for Legibility of Video Materials**

To determine the size of the projected image in relation to the viewing distance, use the 12W

formula. For television, the ratio of screen width to viewing distance is different from that for other projected visuals. To test for legibility of visuals intended to be used on video displays follow this procedure:

- a.) Measure the width of the artwork or graphic display *in inches*.

- b.) Hold the artwork or graphic as many *feet* away from a person or persons selected to test your visuals as the number of inches measured for the art or graphic. If the materials can be read or explained by the viewers, they should be legible when viewed as television images on a well adjusted receiver.

*Example:* The original artwork or graphic display measures 12 inches wide (including the necessary margins); the evaluators will view the material from a distance of 12 feet. Be reminded, don't trust yourself as a test subject.

When working with artwork, graphics, and photographs to be displayed in black and white video, you must consider the color spectrum. For example, some shades of red and green project as similar shades of gray. Learn to use a gray scale, and test all art work with color content on a television system before making finished copy. When planning black and white video productions it is advantageous to:

- Use black and white and shades of gray for artwork and graphics.

- If you must use a colored visual, test it on a portable video unit before final showing. In fact, unless you have much experience, it is best to check *all* visuals on a system with a receiver similar to that to be used by viewers under normal conditions for them. Don't ever use a finely tuned, high-resolution monitor to test visuals.

- Avoid bright, shiny surfaces that can create glare when lighted.

- As with other media, quality reproduction is possible by duplicating from master tape to the same size or smaller tape; avoid, if you can, duplication to tape wider than the original.

- When transferring between film and video, you can usually

**"There are no cookbook recipes that will guarantee success under all conditions."**

obtain the best quality by going from film to video, not from video to film. There are, however, special processes that will produce satisfactory result under the opposite conditions, but they are expensive.

• Master tapes should be stored in a cool, safe location, preferably on wood shelves, and racked in a vertical position.

#### Guidelines for Visual Formats

Visual formats should be understood to avoid problems: although projected visuals should be all designed in horizontal format, the ratio of height to width is not the same for all media. This fact can present problems when the same visuals are to be produced with different media. For example, 35mm slide images are 2 units high by 3 units wide, while 16mm film images are 3 units high by 4 units wide. As another example, the format of 35mm slides with a 2:3

ratio is different from the television format, which is 3 units high by 4 units wide (3:4).

Since legibility standards for television are different from those for projected media (see the 6W and 12W formulas), and since visuals originally made for other media must often be used for television productions, the problems that can arise should be anticipated and avoided at the outset of production planning. For example, 35mm slides that have been designed for projection according to the 6W formula probably should be redone for satisfactory presentation on television.

These rules are generally applicable to all visual materials. There are, of course, situations that require bending the rules to achieve a desired effect. These occur particularly in the motion-visual field, and in attempts to make training materials for affective-attitudinal objectives. Each situa-

tion must be coped with on an individual basis. Unfortunately, there are no cookbook recipes that will guarantee success under all conditions, and we frequently have to compromise. Test, revise, and test; revise again and test again.

When you are developing all types of media for instruction, and especially those that are expensive and sophisticated, the more time spent on preproduction planning, and the more revising and editing of rough-draft materials during developmental testing, the greater the possibility for success. Without sufficient planning, even the most sophisticated medium available will not make poor lesson material good. In fact, the reverse effect may result, and poor material will appear to be even worse than it is.

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