CREATIVE TECHNICAL ART OFFERS A VARIETY OF WAYS TO GET ATTENTION AND COMMUNICATE TECHNICAL AND HUMAN CONCEPTS IN WAYS THAT WILL BE REMEMBERED.

ARTISTIC TECHNICAL TRAINING

BY ROBERT H. FRYE

The mind is a slippery place. To make things stick in it, you've got to get its attention and give it a vivid picture without distractions. Something it can relate to. Technical subjects can compound the problem.

Technical training can turn people off. It can be boring, confused, intimidating, jumbled, overcomplicated. It can cause feelings of insecurity, fear and resentment that inhibit learning. And for many of us, reading technical instruction is a last resort. These communication blocks can be lessened by applying creative, technical art. These art forms include directed cartoons, interpretive sketches and process diagrams called WHIF charts. I'll explain each of these later.

The first step in applying these art techniques is identifying which barriers to communication and trainee feelings are present. This is accomplished through the usual methods of front-end analysis with emphasis on what the job performer really needs to know and the hidden human factors that affect their attitudes and performance. Get the information you need by interviewing production people and supervisors, as well as other key people, in an informal, non-threatening way to get at the hidden inhibitors to technical communication.

Technical training is a challenge for a number of reasons. Basic concepts and critical working parts are often hidden among complex circuits and mechanisms. Operations frequently must be explained in a certain order; and to understand them, the trainee must be able to identify key parts at the moment he/she reads about them. Resentment, fear, insecurity and other human emotions can inhibit learning. And technical trainees often suffer from a lack of concentration and motive for learning.

Creative technical art is not the only way to deal with communication barriers and an aversion to the printed word. Crisp, lean writing helps. Audio-visual programs in all forms can alleviate the problems. But creative technical art has a way of attracting attention and communicating that can supplement all the traditional media. Maybe it's because cartoon art and sketches are associated with pleasure and make the mind more receptive. Research has also demonstrated that extraneous detail inhibits understanding.[1] Art can eliminate irrelevant detail, and focus on the significant facts.

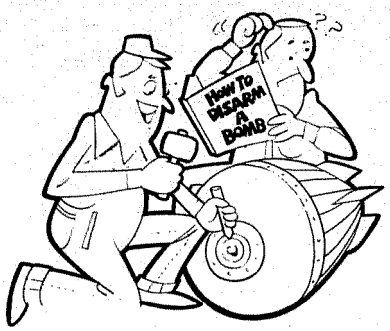
Directed Cartoons

Directed cartoons as opposed to comics have a specific purpose. They can quickly communicate an idea that may take many words and might not even be read by the trainee.

Cartoons can also attract attention and make points by exaggeration. The importance of including all the significant information in technical instructions cannot be overemphasized. The results of such omissions can be very costly.

Another important use for cartoons is to provide a character for transfer of touchy subjects or undesirable personal characteristics away from sensitive individuals. Such a character can sidestep

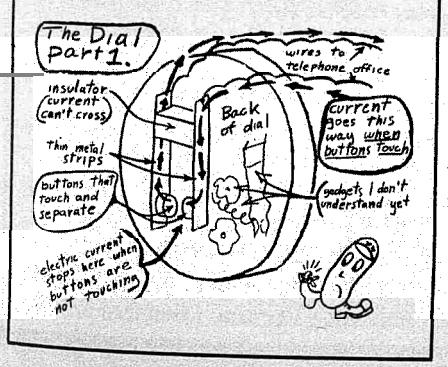
Figure 1.
DETAILS ARE IMPORTANT



the tendency to accuse the trainee of ignorance or negative attitudes. You can show the effects of good or bad characteristics without appearing to preach or talk down to the trainee. The cartoon character can be dumb or foolish and get the message to the trainee without being degrading or threatening. The little character in Figure 2 is named Wundering Willie. He learned how a telephone worked by making lots of mistakes and doing dumb things. But employees at General Telephone, who didn't want to acknowledge ignorance, learned a lot that they needed to know. Each issue of the employee newsletter contained a cartoon and a few paragraphs of descriptive narrative. Following the sometimes comic adventures of little Willie encouraged them to read, and they learned in spite of themselves.

We have all enjoyed comic books as children. Even the poorest comic book distributed by an employee's company will be read by each person and his family. This powerful communication medium can get across messages that management has been unable to communicate in other ways. Cartoon strips can explain complicated industrial engineering concepts, industrial relations goals, the benefits of teamwork and principles of supervision, to name a few. Figure 3 is an example of a production line concept that was communicated effectively for United States Gypsum Company. This sequence is part of a cartoon book that reinforced ideas presented in an accompanying video tape. It stimulated conversation on the job and in employees' families.

Figure 2.
HOW A TELEPHONE DIAL WORKS



Cartoons for technical training may be funny, but if humor is used, it is for making a point memorable, not for entertainment. A cartoon can get a trainee's attention and help him remember a point he might otherwise overlook. For instance, you could print the following message in your manual: *Use care in operating the slitting machine to avoid serious injury.* Or you could increase the impact of the message by adding an appropriate cartoon.

Here are some words of caution, though. Be careful not to introduce cartoon art that distracts the student. If it is not designed to make a specific point or is used only to get a laugh, the student can miss the message you are trying to communicate and remember only the joke.

As in video and film mediums, talking faces in cartoons and redundancy is seldom effective. The artwork must contribute, reinforce, or illustrate the verbal component. If you can't explain the purpose of the artwork, it is probably unnecessary.

Interpretive Sketches

Sketches that interpret what is really there, show it in a new light, or present its effective if not actual function have an important place in technical communication. They supplement, not replace, conventional sketches and technical drawings.

Such sketches can eliminate extraneous and distracting detail and show the underlying principles of a process or operation. The effectiveness of simplified drawings in communicating technical information depends on the subject, colors, and other factors.[2]

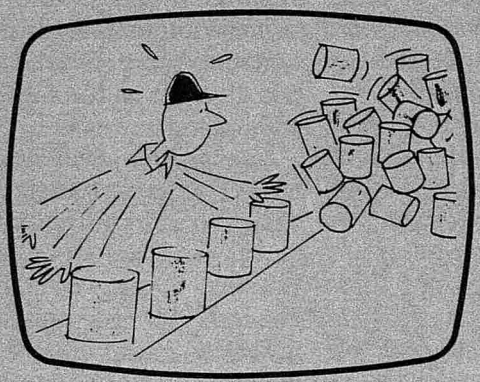
Interpretive sketches can also be used to impart human or animal characteristics to machinery. Figure 4 was used to emphasize the fact that slitting machinery poses hazards to the operator. The machine could also have been drawn to look cooperative or friendly, depending on the impression to be communicated.

Sometimes the equipment that performs an operation is beyond the students' comprehension or frame of reference. It relates to nothing in their experience, but they still need to understand the theory or principles of how it works. In such a case, you can use an interpretive sketch that uses familiar devices to graphically explain the concept.

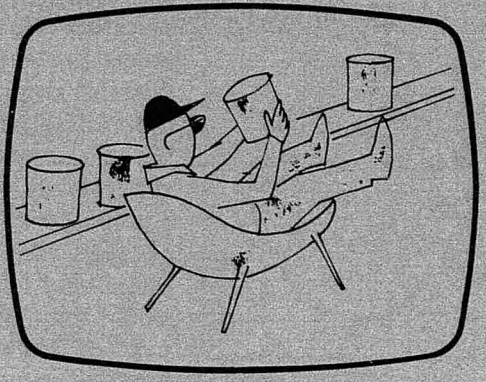
Explaining operations or se-

Figure 3.

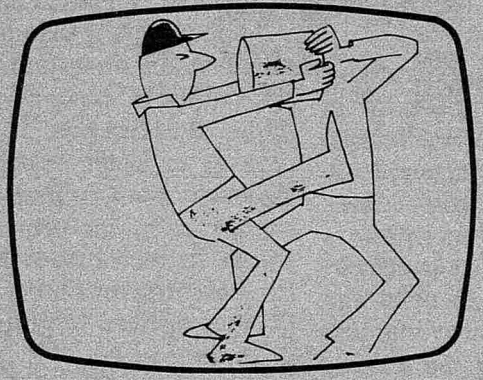
BENEFITS OF PRODUCTION LINE LEAD TIME



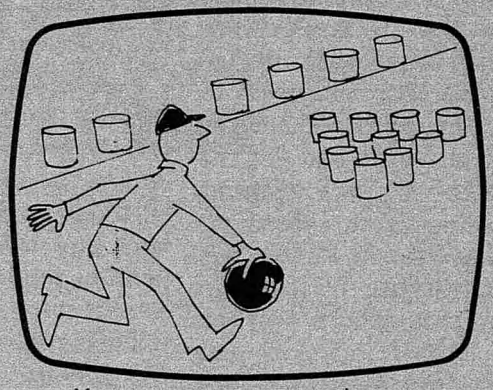
Lead time is getting a little ahead of the line. This can do a lot for you.



Take a break.



Help someone else out.



You can vary your work pace.

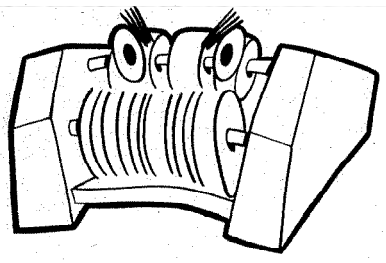
quences of electrical or mechanical events involving components that are unfamiliar to a trainee present another problem. Some descriptions, such as the following may leave the learner puzzled at every word:

"The tumbler shaft actuates the power cam to reset the balance valve." If each word brought a mental picture to the trainee's mind, he might be able to comprehend the sequence of actions. But the minds of many readers turn off at the mention of the first unfamiliar part.

A most effective way to link sequence descriptions and operating components is through graphic devices called WHIF (when and if charts).[3] A WHIF chart (Figure 5) is a drawing surrounded by description that explains a series of operations. It features a starting point and a chain of arrows that show the sequence of events that take place in a circuit or mechanism. As each critical part appears in the description, it is boxed and a pointer extends from the box to the part on the diagram. The chart may be designed to begin with the final step in a sequence and work backward to the originating action. Or as shown in Figure 5, the sequence may begin with the initial action and follow the series of events to the final result. The diagram shown is used to describe how a sensing device controls the diameter of extruded tubing. The trainee simultaneously learns the names, functions and locations of parts as well as cause and effect relationships. Similar types of flow diagrams have also been used successfully by General Motors Corporation in diagnostic and repair manuals.

Creative technical art offers a variety of ways to get attention and communicate technical and human concepts in ways that will be remembered. To be effective, each drawing needs a specific purpose. Talking faces, needless redundancy and pointless distracting humor are ineffective. This article presents a few ideas that you can apply in your technical communication. The possibilities are limited only by your imagination.

Figure 4.
SLITTERS REQUIRE RESPECT



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2. *Ibid.*
3. Horabin, Ivan, and Lewis, Brian (1974), *Algorithms*, Ivan Horabin, Charles Town, W. Va.

Robert H. Frye is president of the Learning Shop, an instructional development company in Glenview, Ill. He specializes in technical and skills training for scientific, engineering, plant and sales people in the manufacturing industry. Prior to starting his own firm, he was training program development manager for United States Gypsum Co. He is editor of the ASTD Technical and Skills Training Division Newsletter and past president of the Chicago chapter of the National Society for Performance and Instruction.

Figure 5.
AUTOMATIC TUBING DIAMETER CONTROL