

Making It All Interactive

By DIANE M. GAYESKI

Interactive training technology should be part of an interactive training system. Here is one way to achieve continuity in concept, design and implementation.

Interactive video and computer-assisted instructional technologies have captured the attention and imagination of many trainers. It is important for those of us who design training programs to remember that interactive materials need interactive instructional design in order to be effective.

The instructional design system presented here is interactive in three senses of the word: It encourages and assists the development of interactive presentation systems; it incorporates interaction in the design model by having a wide variety of people participate on a design team; and the system itself is accessed via a microcomputer-based tutorial that leads the designer step by step through the design stages.

The idea for the participatory design model originated during work on a series of ethnic studies videotapes funded by the U.S. Office of Education in 1977-1978 and produced at the University of Maryland's Educational Technology Center. The objective was to develop curriculum materials by and on Southern and Eastern European-American ethnics in the U.S.

Many of the ethnics we worked

with believed that their groups had been stereotyped and misrepresented by the media and the educational system; they said that documentaries had made them objects rather than subjects. Much of our work involved developing strategies for integrating the views of the ethnics themselves (the real experts) with the recommendations of the project's instructional designers, media producers, curriculum experts, teachers and ethnic studies scholars.

The result was a new instructional design model that focuses on team program development by identifying and representing the views of programs' constituencies.

The model

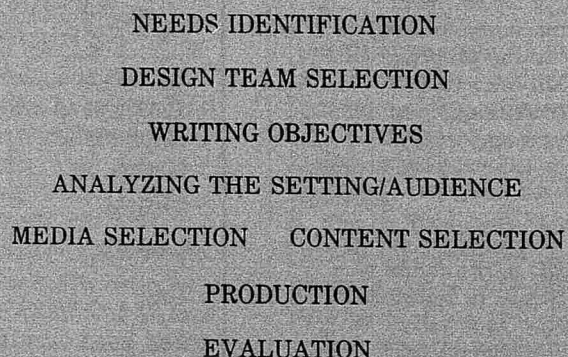
When we tried using typical instructional design models with

the development team, it became clear that design processes do not necessarily follow the sequences outlined in flowcharts. Real-life projects tend to start in the middle and work their way backward and forward through design stages. We also experienced a good deal of disagreement, as well as consensus, among team members concerning the selection and treatment of program concepts.

Rather than treating these phenomena as deviations from the ideal, the participatory design model we developed acknowledges these occurrences as positive steps through which every project proceeds.

Figure 1 is a representation of the model. Although ideally the process flows from top to bottom, the model acknowledges that many recursions through the

Figure 1. An Interactive Instructional Design Model



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steps occur in real projects.

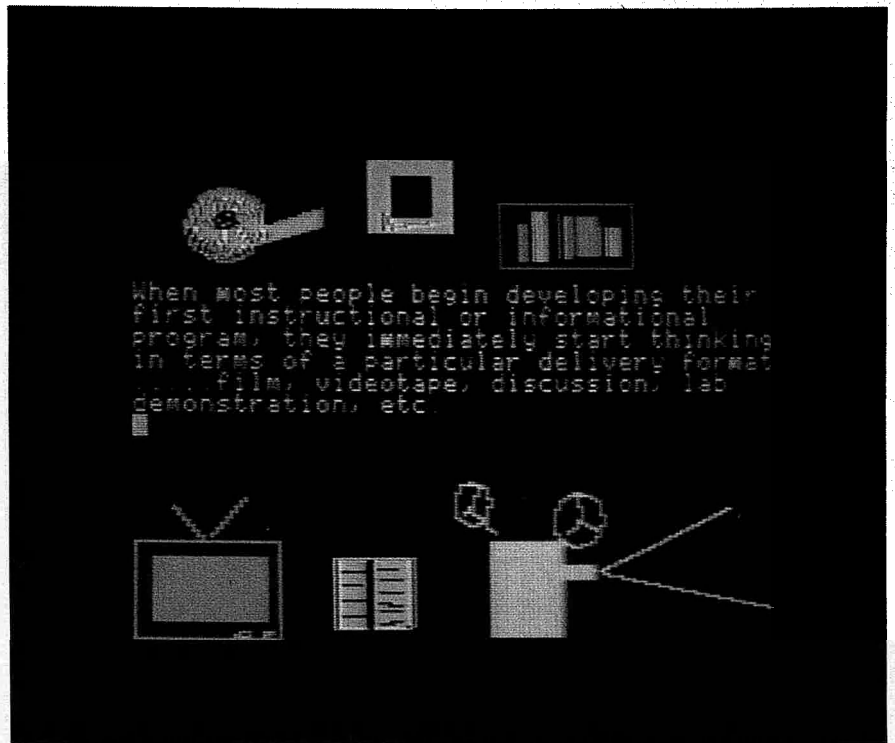
The first step is to identify the need for an instructional program and, in the process, discern the underlying problems contributing to the need. Next is the important, innovative stage in which the principal designer identifies the constituency for the program and forms a design team. This team usually consists of media and curriculum development experts, instructors, members of the proposed audience and content experts.

The team develops behavioral objectives and arranges them in a learning hierarchy. Then they analyze the audience and the instructional setting to determine how they affect the program's content and format. The team examines media and content examples concurrently, since these two concerns directly affect each other. For example, certain content demands certain kinds of media: Teaching complex psychomotor tasks requires not only moving visuals in the instruction, but also an opportunity for active practice. Likewise, certain media impose technical requirements which, in turn, limit the examples that appropriately can be used. Once possible techniques have been identified, they are "filtered" through the criteria of the stated objectives, team input and budgetary and other practical constraints.

After this design work come the scripting, pre-production and production stages. The program is evaluated both formatively (during the various stages of production) and summatively (in its final form). Feedback from the evaluation contributes to further refinement of the product.

This model has been employed successfully in content areas far removed from ethnic studies. Bank teller training, sign language training, sales training for Xerox Corporation and technical training for Reliance Electric, among others, have used the model.

Unfortunately, stereotyping and inaccuracies are commonplace in industrial training;



While supporting the concept of interactivity the microcomputer tutorial helps the designer understand the model and develop effective instructional materials. This screen introduces the sequence that helps the designer select the best media for the training program's audience and objectives.

training managers and program producers often are quite removed from the end-user. This lack of communication and knowledge can lead to the development of materials that, although strictly correct in content, are so foreign to the end-user in style, vocabulary and scene and character development that they are ineffective.

Training designers to use the model

We have found it useful to present and work with this model using a microcomputer tutorial. The tutorial, programmed in Apple Pilot, which is specifically designed to facilitate the development of computer-assisted instruction, helps the designer understand the model and develop effective instructional materials.

The microcomputer's branching capabilities allow each designer to benefit from an individualized explanation. By gradually helping the designer define the project's

topic, audience, objectives and other factors, the microcomputer program explains the model in terms of the designer's specific project (see illustrations on this page and page 42 for examples).

If the designer reaches an impasse, he or she can access "help" screens or branches containing in-depth material. In this way, each person is presented only with pertinent information and questions. Data banks of definitions, examples, media requirements and capabilities and so forth can be incorporated into the program.

This interactive design system is being taught in college courses in corporate and organizational media as well as in professional seminars and consultations with trainers, teachers and media producers. For example, it is incorporated as a simulation exercise in Ithaca College's undergraduate survey course, Theories of Communications Media, and in an upper-level course, Interactive Video.

NOW, DIANE, LET'S TRY TO SELECT THE MEDIA OR TECHNIQUES THAT MIGHT BE APPROPRIATE FOR YOUR PROGRAM ON BEARING MAINTENANCE.

In this section, you'll be given a list of possible media at the top of the screen. At the bottom of the screen will be questions about what media characteristics will be necessary for the program you're developing. Just answer Y for yes, or N for no, then press RETURN, and you'll gradually eliminate those media which would NOT be suitable for your purposes.

Addressing the designer by name (the computer and the designer "meet" during the first few steps of the tutorial), this screen tells the designer how to use the media list and criteria to narrow down the appropriate choices.

SOUND FILM	SILENT FILM
FILMSTRIP	FILMSTRIP/TAPE
SLIDES	SLIDE/TAPE
COMPUTER	PROGRAMMED WORKBOOK
VIDEOTAPE	VIDEODISC
WORKBOOK	STILL PICTURES
ROLE-PLAY	LECTURE
DISCUSSION	LAB DEMONSTRATION
HANDS-ON PRACTICE	INTERACTIVE VIDEO
OVERHEADS	OPaque PROJ IMAGE
SIMULATOR	GRAPHICS
MULTI-IMAGE	AUDIO RECORDING
MODEL	DISPLAY BOARD

Do you need REALISTIC SOUND (other than the human voice)? Y or N

By answering the questions that appear one at a time at the bottom of the screen, the designer (with the help of information stored in the computer concerning good media selection criteria) gradually eliminates possibilities from the media list at the top of the screen.

The system has also been used successfully in coaching experienced trainers through the participatory design model. Companion programs on developing good multiple-choice questions and on understanding and developing computer-based instruction have been produced and are being used with the design system program.

This technology serves as an appealing, motivating, efficient means of guiding the decision-making process and recording strategic information as the design process proceeds. It promotes familiarity with the new interactive technologies and instructional approaches for teachers of trainers. Most important, the technology reinforces the concept of interactive learning and contributes to the goal of an integrated, interactive instructional design system.

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