Successful Teaching Via Two-Way Interactive Video

By Bijan Massoumian

Increasing utilization of telecommunication technologies in distance education is leading to the establishment of these new systems as viable alternatives to the more traditional delivery modes in the field. The significance of these new developments for distance learning cannot be overestimated.

Slowly, the courageous efforts of a handful of institutions such as the University of Illinois in 1947, the Albany Medical College in 1955, and the Stevens College in Columbia, Missouri in 1958 who had the foresight to pioneer educational use of telecommunications have resulted in rapid proliferation of these technologies at all educational levels (Olgren *et al.*, 1983). Today numerous school districts, colleges, and universities from coast to coast are using state-of-the-art audio and/or video telecommunication equipment for a variety of educational projects.

In some regions such as the sparsely populated areas of Alaska, Utah, Montana, Minnesota, the Dakotas, Wisconsin, Michigan, and Arizona, satellite and microwave transmission are proving to be the most effective and efficient method of providing geographically isolated groups with live, continuous interactive learning.

The potential of telecommunications in distance education is so great that some institutions such as Northland Pioneer College in northeast Arizona, have adopted microwave technology as a major delivery system since 1984. For spring 1989, Northland Pioneer College scheduled 16 courses for transmission on its video system (a live two-way interactive microwave network). Another 19 courses were to be offered via network's audio system.

In 1988, this network (EAGLE NETwork) enabled the institution to reach more than one thousand residents of Arizona's Navajo and Apache Counties in seven different locations and provide them with continuous life-long learning in a wide variety of areas. Currently EAGLENETwork covers an area of approximately 21,000 square miles within the Navajo and Apache Counties. This area is larger than the combined size of the states of Connecticut and New Jersey.

While the potential benefits of satellite and microwave technologies for distance learning are rather obvious, their use in the classroom can lead to additional burdens for instructors and learners. Technological complications such as poor transmission/reception of audio/video signals or equipment malfunctions are only one set of potential problems that might disrupt the flow of communication between instructor and learners. Teacher's lack of physical presence in remote sites can also lead to a variety of supervisory problems.

But perhaps a more serious dilemma is the existing shortage of trained teachers who can be maximally effective on these new delivery systems. Most distance educators today have had little or no previous experience with telecommunication equipment. Educational Technology programs in colleges and universities have only recently begun addressing the potentials of these systems for education. A temporary solution to the shortage of qualified teachers might be to provide current distance educators with clear and specific guidelines regarding utilizatioin of these technologies and unique teaching strategies essential for successful presentations.

Though instruction via satellite or microwave represents close approximation of the ideal classroom situation (face-to-face), it still is a significant departure from traditional delivery modes. Consequently, instructors who utilize these unconventional methods of teaching are in need of directions for enhancing their presentations and increasing their chances of success. They may especially need guidance in the following areas:

- Mechanics of telecommunication equipment;
- Teaching strategies that compensate for their lack of personal presence in remote sites; and
- Techniques for maximal exploitation of these new technologies as educational tools.

Familiarity With the System

It is only reasonable to assume that, before going on the air, distance educators must acquire a basic operational knowledge of the system. Typically this involves:

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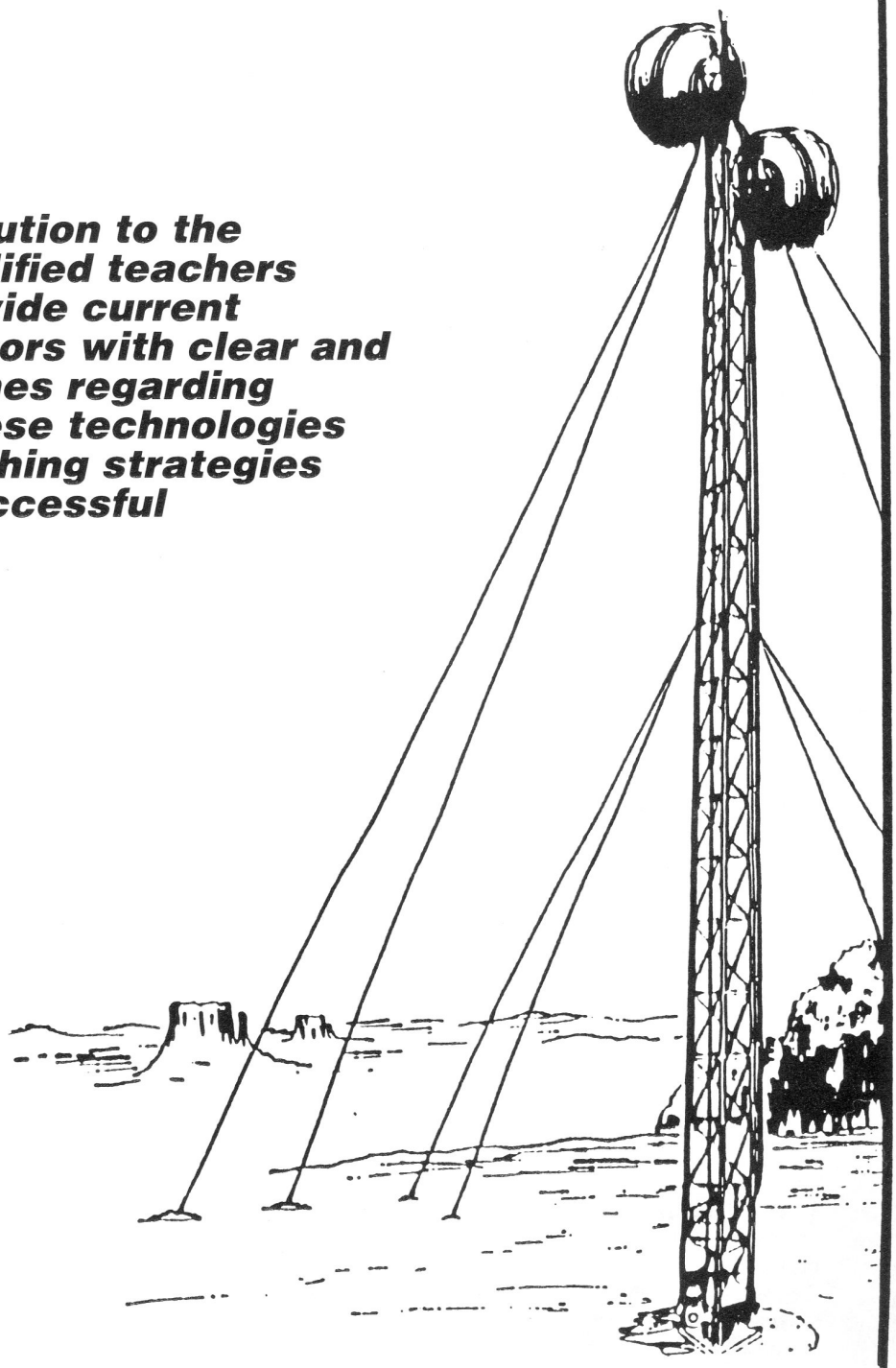

- Familiarity with the main components of the system and the functions of each component;
- Basic troubleshooting skills that would enable instructors to rectify minor technical problems and becomes less dependent on technicians;
- Familiarity with various interactive features of the system for maximizing learning (e.g. switching to different sites for student questions, reactions, or comments).

"On the Air" Communication Skills

1. **Stage Fright** Since the earliest days of Instructional Television (ITV), distance educators have been painfully aware of the fact that teaching via television monitor adds new complexities to an already difficult task. However, unlike ITV with its uni-directional flow of communication, satellite or microwave teaching enables teachers and students to have continuous live interactions. This, while highly desirable, adds to the burdens of distance educators. You would not only be expected to be content experts and skilled communicators, but also a good actor! You would need a stage presence, composure, and appearance that project the appropriate professional image and ensure continued two way flow of communication. This is by no means an easy task. Live TV can make even the professional actor nervous once in a while. Among strategies that might eliminate or minimize stage fright in the novice distance teacher are:
- Getting extensive hands-on experience with the equipment before going on the air:
- Reviewing videotapes of your performance and modifying teaching techniques accordingly;
- Seeking peer evaluations to enhance presentations; and
- Concentrating on the *message* and not the medium or self during instruction.

2. **The "Voice" Factor** As distance educators cannot be physically present in the remote sites, your *voice* takes on a particularly significant role in successful delivery of instruction. You need to pay special attention to voice variables such as loudness, pitch, rate, and articulate pronunciation of words. Typically, your voice should be of moderate loudness and pitch. A moderate rate of speaking is also essential. Talking too fast may be construed as a sign of nervousness while speaking too slowly can result in student boredom and withdrawal.

3. **The "Camera" Factor** Television cameras tend to exaggerate movements. Instructors should be particularly careful not to allow TV cameras to magnify their negative habits. Constant adjustment of your tie or stroking of hair can be perceived as a sign of nervousness or inexperience. This, in turn, may result in loss of credibility with students and their distraction from the learning task. The "Hollywood Syndrome" should also be avoided. This means the tendency among some instructors to **act** rather than **interact** when teaching. The "Hollywood Syndrome" may be an unconscious reaction to being on camera or a "conscious attempt to follow a television model of what is considered to be a professional use of the medium" (Olgren, et al., 1983).

Gaining and Maintaining Learner's Attention

Gagne's well known "Events of Instruction" (Gagne & Briggs, 1987) are powerful organizing elements in conducting instruction via most any delivery system. Each event initiated by the instructor is intended to generate a specific response in the learner which is conducive to eventual learning. While in most cases incorporating all these events in instruction are crucial to your success, some events find added significance in teaching via telecommunications.

Gagne's first event (gaining & maintaining learner's attention) is probably the most vital and yet the most difficult to achieve in telecommunication teaching. Once the novelty of the medium is worn out, it becomes increasingly difficult to keep remote students constantly alert and attentive. Beside the absence of face to face interaction, environmental factors over which the distance educator has little control may interfere with learning.

Selective Attention & Perception

In our complex world, most events occurring at the same time are not perceived by us. Through selective attention and perception, we come to ignore most of the informational data in our environment and channel only a limited amount of such data for registering and processing. In traditional classrooms teachers make regular use of this human characteristic to call student attention to a particular learning task. Their purpose in so doing is to attempt to allocate learners' limited registering and processing resources to absorbing solely relevant information. This process is less difficult in the traditional classroom where the teacher is physically present and can establish direct eye contact with individual learners.

But in a distance learning environment, a teacher's voice and image have to substitute for their personal presence in remote sites. If used effectively, however, these elements can reduce student desire for eye contact with the instructor. In addition, the same teaching *tools* and *techniques* available in the traditional classroom are still in the arsenal of the distance educator. Some, however, take on an added significant role:

Spoken Word: Creating a positive first impression is of the utmost importance in distance learning. If instructors fail to grab the attention of students from the outset, they would be hard pressed to ever gain it again. In the beginning of the class, they can use a variety of oral methods to generate student interest in the subject. For example, you can:
- Point out the significance of the subject;
- Give concrete examples of real-life uses of the subject;

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- Eliminate or minimize any negative feelings that may surround the subject or the delivery mode;
- Ask questions about the subject;
- Initiate discussions on the subject;
- Ask students to share their relevant experience that would demonstrate the inherent value of the subject;
- Deliver instruction with vigor and enthusiasm to keep students alert and interested in the subject throughout the class.
- Maximize interaction between themselves and students and among students to reduce "dead air" time.

Printed Word: The printed word, particularly in the form of visuals and handouts, also plays a key role in satellite and microwave teaching. Carefully planned and prepared visuals and handouts can significantly enhance telecommunication presentations. Distance educators can use a variety of techniques to ensure that students pay special attention to key points/concepts in visuals and handouts. For instance, you can highlight important information by using:

Arrows (---> <----)

Changes in letter size / font

"Quotation Marks"

Boldfacing

Underlining

Italicizing

UPPER CASE LETTERING

Boxes

Inverse Print

Visuals shown via the TV monitor should be of highest quality. Using the following techniques can enhance the quality of visuals:

1. High contrast visuals with legible letter sizes and fonts that are most suitable for transmission on the TV.
2. Color coding for grouping relevant information.
3. "Mapping" techniques for spatial grouping of information:
   - Even spacing between words and lines that belong together;
   - Numbers, letters, or signs (bullets/asterisks/dashes) to differentiate sequence of points.
   - Flush left margins and ragged right margins.
4. "Organization" techniques for facilitating comprehension, retention, and retrieval of information:
   - —Outlines
   - —Headings
   - —Subheadings
   - —Titles
   - —Tables
   - —Graphs
   - —Diagrams
   - —Lists
   - —Charts
5. Use of "horizontal" rather than vertical format for transparencies. Among the advantages of horizontal format for transmission on TV are:
   - More information on a given line;
   - Eliminating distracting borders that characterize vertical format; and
   - More natural zoom-in for greater detail in horizontal format.

Visuals should not only be prepared soundly but used appropriately. Haphazard use of visuals may lead to minimal or no instructional gain and gradual loss of effectiveness as an instructional tool. Visuals can be particularly helpful for:

- Presenting outlines or lists;
- Illustrating key points;
- Presenting complex materials in a step by step fashion;
- Illustrating difficult relationships;
- Summarizing information for prolonging retention and facilitating recall.

The growing strength of the distance education movement is good news for all concerned with maintaining life-long learning as an option for those who desire it. Already, the movement is expanding from a regional and national phenomenon into a global one (Barron, 85: Witaker, 1989). To ensure our readiness for the demands of tomorrow, timely preparation of qualified instructors who can be effective on these new delivery systems is vital. ■

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