

# Using Multimedia in Hospitality Training

***Because multimedia programs can save time and may increase retention and mastery, they are efficient and effective tools for teaching skills and concepts***

by Kimberley J. Harris and  
Joseph J. West

TECHNOLOGICAL ADVANCES are changing the way American industry conducts business. Many public and private organizations have cut costs and increased the quality of training by using technology to accomplish tasks traditionally performed by employees.

Hospitality-industry managers are struggling to find cheaper and more-efficient ways to track customers, increase quality, and improve training, but they have not integrated cutting-edge technology into their communication and

training programs because of the high initial cost of such systems. As the cost of hardware and software continues to decline, however, managers in the industry should include these tools in their long-term budgets.

Computers have proven beneficial for training and information transfer in many *Fortune* 500 companies, such as Ford Motor Company, J.C. Penney, Walmart, and IBM. Interactive multimedia training and informational kiosks reduce employee training time, improve learning and retention, and increase sales.

This article assesses the use of multimedia systems in American business and education and examines hospitality-education programs that are based on

multimedia systems. The article will familiarize managers with the technological terms involved, provide guidelines for purchasing new systems that can be used with existing equipment, and give examples of multimedia-system use in training, personnel management, customer service, and operations.

*Kimberley J. Harris, Ed.D., is an assistant professor of hospitality administration at Florida State University, where Joseph J. West, Ph.D., is assistant professor and chairman of the department of hospitality administration. The authors express their thanks to Robert Brymer, Psy.D., for reading early versions of this manuscript and offering suggestions that improved the final iteration.*

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## EXHIBIT 1

### Multimedia definitions

**CD-ROM (compact disc, read only memory).** This disc format was introduced in the 1980s as a mass storage device for personal computers. It can store digital data of any kind, including sound and video graphics. The most popular uses of CD-ROM are computer-based encyclopedias, music libraries, and data storage such as Educational Resources Information Clearinghouse (ERIC). In its present state of development CD-ROM does not offer what experts consider quality audio or screen displays; however, this is expected to improve in the near future as new technologies are developed.

**CD-I (compact disc-interactive).** Originally formulated to be operated on Apple Computer, Inc., hardware, it is predicted to become the ultimate multimedia system for home-entertainment applications. Like CD-ROM, it can store massive amounts of text information; however, CD-I offers the ability to link any type of audio, video, and text information and to retrieve that information from the disc. This technology uses a television and a special keypad or joystick instead of a personal computer. CD-I will hold up to 650 megabytes on a 12-centimeter disc, and can handle data from a variety of media, including video still frames (over 7,800), audio (over two hours of high fidelity stereo or 17 hours of simple narration), text, and graphics (up to 150,000 pages), or a combination of those under the control of the computer program on the disc.

**Interactive video ("laservision").** This technology was researched extensively in the early and mid-1980s by the military as a training tool. Interactive video is a combination of computer, video, and audio that can be accessed from a laser-disc player, a program designed to give the user the ability to interact with the systems and the connecting peripherals.

**DV-I (digital video, interactive).** This medium is specifically suited for DOS-based computer systems. It is a method of decoding audio-visual signals so that screen and stereophonic outputs are compressed into equal one-hour segments of VHS full-motion video on one CD-ROM disc. Prior to DV-I development, even large discs (e.g., 12-inch discs) could hold only one-half hour of motion video.

**PC-TV (personal computer-television).** Also referred to as PS-TV or "personal-system television," this is the most-recent format for home entertainment and training and is widely available at retailers, including national chain department stores. PC-TV is a method for consumers to enjoy dual-program viewing on their home televisions. Viewers may see a full-screen image as well as a mini-screen image simultaneously on the same monitor.

**PIP (picture-in-a-picture).** This program offers a "window" (i.e., a small picture) on a full-screen monitor. What appears in the window can be another program running simultaneously, data from a compact disc or laser disc, text, or live motion video from a video camera.

**Hypermedia.** The terms "hypermedia" and "multimedia" are often mistakenly interchanged. Multimedia refers to *any* tool or software used to access multiple forms of audio-visuals (e.g., sound, animation, video, text) with one system. Hypermedia are different types of media that are computer-controlled and *linked* via interactive "hot" buttons (e.g., text, audio, and video databases). Hypermedia are a form of multimedia, but not all multimedia are hypermedia. Source: L. Tway, *Welcome to Multimedia* (New York: Henry Holt & Co., Inc., 1992), pp. 5-6.

John Sculley, Chairman and CEO of Apple Computer, defines hypermedia as "...the delivery of information in forms that go beyond traditional list and database-report methods....it means that you don't have to follow a predetermined organization scheme when searching for information. Instead, you branch instantly to related facts. The information is eternally cross-referenced, with fact linked to fact linked to fact." Source of quotation: Danny Goodman, *The Complete HyperCard Handbook*, 2nd edition (New York: Bantam Books, Inc., 1988), p. xvii.

## What Is Multimedia?

Multimedia presentations are combinations of instructional resources controlled by a single operating system, usually computer-based. The operating system enables the presenter to design a lesson or demonstration using a mix of such resources as text, audio, still and motion video, graphics, and animation that are controlled and manipulated through a computer program. The presenter has great flexibility in formulating a program that will best meet the needs and learning levels of the audience.

Terms describing multimedia are often coupled with the word *interactive*. "Interactivity" is defined as the "interplay of user and interface (tool, system, or peripheral used for communication or activity) to initiate decisions and responses that are specific to the user, controlled by the user, and determined by the user."<sup>1</sup> Exhibit 1 contains some frequently used terms and their definitions. The potential for user control and customization is a key to multimedia's potential.

Programs that are user-paced, technical in nature, and intended to communicate organizational information can be adapted into an interactive, multimedia system. The programs of the hospitality industry are readily adaptable to an interactive training and information-transfer environment (see the box on page 80).

## Efficiency and Effectiveness

Multimedia programs are an efficient and effective means of training for technical skills and conceptual development. They save time and may increase retention and mastery while involving the user in the learning process. Some studies show that using multimedia increases efficiency, effectiveness, and learner motivation.

Interactive tools were once thought to be best suited for individuals.<sup>2</sup> Research

<sup>1</sup>Philips International, *Compact-Disc Interactive: A Designer's Overview* (New York: McGraw-Hill, 1988), p. 6.

<sup>2</sup>Michael DeBloois, Karen Clauson Maki, and Arno Ferrin Hall, "Effectiveness of Interactive Videodisk Training: A Comprehensive Review," *The Videodisk Monitor*, published by Future Systems Incorporated (1984) as part of "The Monitor Report Series."

has suggested, however, that interactive systems are also well suited for groups.

The author found that in the training of entry-level hospitality managers, the use of interactive video resulted in the same test scores in less training time than instruction based on lectures. By conducting some additional calculations, we also determined that individuals' scores when trained in groups of two and three were somewhat higher than the scores recorded by individuals who used the system alone. The interactive-video training group (n = 31) had virtually the same test scores as the lecture group (n = 29); however, training time was significantly less in the interactive-video group (Exhibit 2).<sup>3</sup> The study results suggest, therefore, that an interactive-training program may not be more *effective* than traditional classroom techniques for training, but it is more time efficient when dealing with groups.

A study by Kinzie and Sullivan found that students were more motivated to interact with multimedia instruction than with the same material presented in a lecture-pupil format, which resulted in higher retention rates and reduced teaching time.<sup>4</sup> Friend and Cole found that trainees preferred the presence of a trainer when using interactive programs, which suggests that the effectiveness of the training and the motivation of trainees may depend on the presence of a supervisor at some point during the instruction.<sup>5</sup>

Schaffer and Hannafin reported that interactive technologies have made, and will continue to make, a significant impact on training.<sup>6</sup> There are questions about how much and what type of interaction is

<sup>3</sup>Kimberley J. Harris, "Interactive Video in the Hospitality Industry," doctoral dissertation, Virginia Polytechnic Institute and State University, 1990, p. 99.

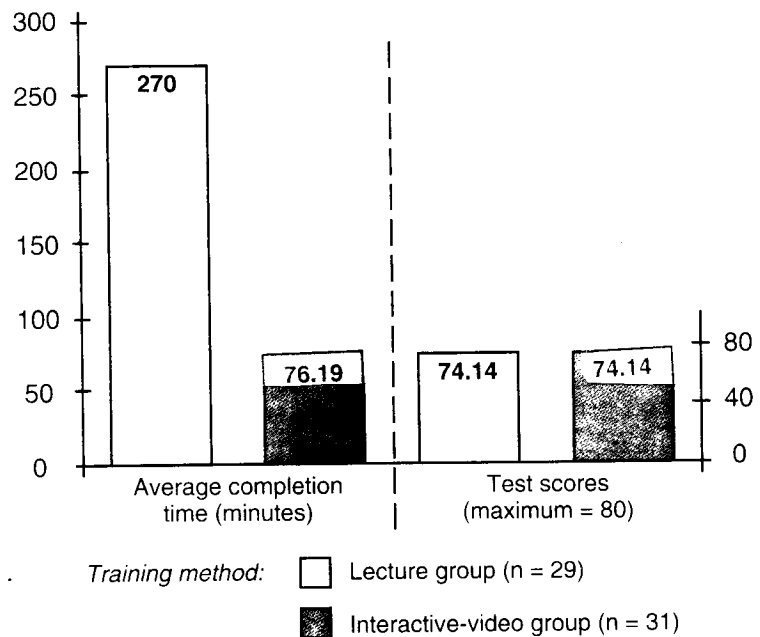
<sup>4</sup>M.B. Kinzie and H.J. Sullivan, "Continuing Motivation, Learner Control, and CAI," *Educational Technology Research and Development*, 37, No. 2 (1989), pp. 5-13.

<sup>5</sup>C.L. Friend and C.L. Cole, "Learner Control in Computer-based Instruction: A Current Literature Review," *Educational Technology*, November 1990, pp. 47-49.

<sup>6</sup>L.C. Schaffer and M.J. Hannafin, "The Effects of Progressive Interactivity on Learning from Interactive Video," *Educational Communications and Technology Journal*, 34, No. 2 (1985), pp. 89-96.

## EXHIBIT 2

### Average training times and scores, interactive video versus lecture



most effective for mastery of subject matter, but organizations using multimedia training universally report its superiority to traditional methods of instruction.

## Development and Use of Multimedia Programs

The decision to develop multimedia programs often results in unforeseen administrative difficulties. Program development demands creativity and cooperation from a team of cartoonists or illustrators, audiovisual technicians, musicians, color specialists, and content experts. The required expertise is rarely readily available in-house, although some campuses may have all of these resources somewhere, either in a single department or scattered throughout branches of the college.

Although multimedia programs save time, are motivational, and improve learning, they are expensive to develop and

produce. As the cost of hardware and software, including authorship programs, continues to decline, however, several forward-thinking organizations are incorporating the technology into their operational strategies to improve service and training (see the accompanying sidebar that describes how the Marriott Corporation uses multimedia as a recruiting tool).

Historically, interactive technologies have been used primarily by large companies and the military. Interactive video has been used for simulated training systems such as flight training, experimental surgery, and management of wildlife refuges. The military was the first to conduct extensive research with interactive technologies, mainly interactive video. Studies by the World Institute for Computer Assisted Teaching, the Electronic Information Delivery System, and the U.S. Navy indicate that the use of

## How Marriott Uses Multimedia for Employment Marketing

Over the past three years, Marriott Corporation has developed a recruiting system based on multimedia technology. The development started in summer 1990, when Marriott determined that it wanted a new approach to recruiting, particularly for graduates of university-based hospitality programs. Believing that motivated graduates would accept entry-level positions if that began a career path, Doug Price, erstwhile vice president of national employment marketing, sought different means to recruit those graduates. After hearing the students' concerns about recruiting, including a weak job market, Price's team concluded that the students were more interested in specific position descriptions and salary packages than in receptions and dinners. In short, the students wanted the facts. The team's challenge was to present those facts without the customary expenses of travel and entertainment.

By comparing the cost of labor involved in travel against the expense for computer-based technology, the team established that multimedia packages offered the best opportunity for cost containment—after high initial development expenses. That development hinged on an "end-user"

philosophy. Price believed the needs of the users should drive the technology, rather than have the technology determine what the users could do. In interviews with students at eight major hospitality schools, Marriott explored what the students wanted to know, plus what technology they would prefer to use in finding the answers, including touch screens, mice, and keyboards, and headsets and speakers.

**Prototype.** Based on the potential users' choices, Price's team developed a hardware configuration of a mouse-based Macintosh IIci attached to a Sony laserdisc player. That system could not honor the users' preference for a headset due to other technical considerations, but Marriott believed that it had a hardware configuration with which most students would be comfortable.

Software development proceeded in much the same way. Marriott information-systems expert Jim Cannaday used "Authorware" to develop a showcase called "Explore the World of Marriott." The original program allowed users to use the mouse to click through video segments and still photos showing Marriott's history, corporate mission, divisions, departments, and, most important for the students, career options. At the end of the programmed tour, students could input their own

questions, comments, and requests for information about specific program openings. Those questions would be copied to diskette and shipped to the national employment-marketing office in Washington, D.C., where Price's team would respond through return diskettes and conventional letters.

Students at eight hospitality schools gave the "Explore" system a test drive in fall 1991.\* In general, the students appreciated the system, partly because the computer does not judge the merit of any question and the students felt more comfortable asking some questions using a computer than with a human interviewer.

The system was not without difficulty, however. Analyst Paul Rowson was brought in to investigate potential improvements. Rowson first noted that the system's users—Marriott and the students—were too dependent on other people. The system required staff at each site to copy question files onto diskettes for mailing and upload the answers when the diskettes returned. That requirement impaired the system's effectiveness at some sites, because

\*The students were at California Polytechnic University at Pomona, Cornell University, University of Houston, Howard University, Michigan State University, Pennsylvania State University, Purdue University, and the University of Wisconsin-Stout.

interactive-video training programs resulted in improved learning, decreased training costs, and increased motivation in trainees.<sup>7</sup>

Large organizations such as Ford Motor Company, J.C. Penney, Florsheim Shoes, and the American Management Association are among the first American companies to use interactive-video technology successfully to market their products and services as well as to train employees.<sup>8</sup>

IBM has a relatively new digital program, Ulysses, that allows the user to interact with a multimedia system to

bring the prose of Shakespeare to life. The program presents the user with a picture menu of various famous Shakespearean narrators. By touching the picture of a narrator, the user is able to listen to Shakespeare as interpreted by that artist. The different narrations give the bard's verse new meaning, and the audience experiences different interpretations of Shakespeare's work.<sup>9</sup>

ErgoMotion, an interactive IBM program designed to operate in the DOS environment, allows students to study the effects of changing the depth of curves, the steepness of inclines, and the shapes of a roller coaster's loops. It provides, in an animated environment familiar to people

of all ages, the framework necessary to design a roller coaster and then demonstrates the effect of the engineering. Thus a subject as technical and mathematically based as engineering is made accessible to the novice.

In 1991 the Philips Corporation targeted its interactive-development efforts toward the mass-entertainment market by giving audiences the ability to manipulate the content and form of programs on their television screens. Through the use of compact discs and a special computer, the user can control color palettes, audio tracks, and video segments. Viewers can change the lyrics of songs, add voice-overs, create set designs, and select various scenarios. The viewers get feedback from the program concerning their decisions.

<sup>7</sup>See: R. Neff, "Videos Are Starring in More and More Training Programs," *Business Week*, 3015, No. 9 (1987), pp. 106-110.

<sup>8</sup>A. Fisher, "Personnel Training Programs Explain Technology with Precision," *Administrative Management*, 48, No. 4 (1987), pp. 17-21.

<sup>9</sup>"Closing the Skills Gap," *Multimedia Solutions* (an IBM publication), 5, No. 5 (September/October 1991) p. 76.

available staff couldn't always handle the work load. Even when the disk transfer could be handled expeditiously, the process was often delayed in the mail. Other sites found the sound system too much for its location—distracting to neighbors and sometimes embarrassing for the student user.

**Modem operandi.** By spring 1992, the Marriott team was working on revisions to the system. The obvious solution to the response-time problem was to link the university-based Mac stations via modem to Marriott's host computer in Washington. The team struggled for six months to establish that connection. Moreover, the team also had to find a work-around that would allow the use of headsets, and some schools had to change the location of the hardware for better visibility, access, and security. As Rowson put it: "We faced all the challenges associated with creating cutting-edge technology."

The team persevered, however, testing a "beta" version of the system at Michigan State late in 1992. The new system, connected to Marriott on dedicated phone lines, expeditiously captures student questions and comments. It also allows Marriott to view and manage its Explore files from national headquarters. Once captured, data are sorted by student name, date, and

school. Student requests are collected in batches and relayed by electronic mail to the appropriate offices at Marriott. "By taking advantage of E-mail," Rowson said, "our team can instantly solicit information from the entire company."

The response is exported to the Mac station where it originated, while a hard-copy response is also mailed to the student. The company is also able to compile a list of questions and responses, along with student data, for internal use and for the participating colleges. The schools can use the information to determine students' interests and even adapt course components. The end result, Rowson believes, is that "by using this tool in partnership, we can develop students who better meet both industry and academic expectations."

On-line communication also opens another feature: lists of open jobs are loaded on the Mac stations from Marriott's bulletin board so that students can see a list of openings at specific properties. Marriott can even target specific campuses for particular information. The company's E-mail users can connect to the interactive system to receive or answer students' questions.

**Next phase.** With the technical problems under control, Rowson and his team are examining the human issues. For instance, what will attract the stu-

dents to the Marriott terminal in the first place? How much time are they willing to spend viewing the canned "tour"? What will bring them back to view new information? Should manuals be supplied so the students can use Explore more effectively? Most important, is the system successful in its objective of recruiting quality candidates without the traditional expenses?

Marriott plans next to allow students to direct their résumés electronically to specific properties with job openings. The company also hopes that the system will assist the students in preparing for job interviews. While some graduates are wise enough at least to skim the annual report before going to an interview, they still may lack an appreciation of the work environment that Explore can provide them.

The Marriott model offers an opportunity to study a focused, innovative application of technology from its conception through its effect on recruitment and staffing. If the model proves successful, it may dramatically change the recruiting procedure as we currently know it.—*Pat A. Jonker, Ph.D., assistant professor of hospitality computer applications, California State Polytechnic University; and Paul Rowson, senior manager of national employment marketing, Marriott Corporation.*

## Use in the Hospitality Industry

As American expectations of quality service and products become more sophisticated, managers of hospitality firms are discovering that they must educate their employees and the public about their organizations in an entertaining manner. The development of multimedia programs has helped managers perform those tasks. For example, firms have used informational kiosks in public areas, implemented interactive employee-training programs, and networked interactive communication systems.

Hospitality-education programs at Florida State University, Florida International University, and Vermont's Johnson State College are successfully using

interactive technologies in their classrooms. The programs train students in sanitation, front-desk operations, and marketing strategy relating to travel and tourism. Professors have reported that the systems enhance lectures, encourage interest and involvement, and result in high retention of the subject matter. They consider the systems an important step toward efficient and effective education.<sup>10</sup>

Some firms in the hospitality industry are using interactive programs (videodisk

<sup>10</sup>See: P. DeVeau, "Creating a Magic Classroom with Interactive Multimedia Tools," in *1991 Annual CHRIE Conference Proceedings* (Washington, DC: Council for Hotel, Restaurant, and Institutional Education, 1991), pp. 233-234; and K.J. Harris, "Interactive Video: The Instructional Tool of the '90s," in *1991 Annual CHRIE Conference Proceedings* (Washington, DC: Council for Hotel, Restaurant, and Institutional Education, 1991), pp. 116-119.

and compact disc) either alone or in networking applications. ARASERVE, Marriott, Sheraton, and Domino's use interactive programs in training, recruiting, and operations. The Educational Institute of the American Hotel and Motel Association has pioneered interactive computer-based training programs for hotels and motels.<sup>11</sup>

Researchers predict that the organizations using multimedia systems will continue to find new areas in which to use them and that those not using the technology will soon adopt it.

<sup>11</sup>See: M. DeBlois and L. Yanis, "Vincent, the Noid, IVD, and a Four-Step Model," *Instruction Delivery Systems*, 3, No. 5 (November 1989), pp. 8-11; and J.F. Durocher, "Beat the Training Challenge with Interactive Videodisks," *The Cornell Hotel and Restaurant Administration Quarterly*, 31, No. 1 (1990), pp. 47-55.

Several studies have reported that the higher the interactivity, the more trainees are motivated to seek additional training.

### Applied multimedia for hospitality-training

Multimedia applications in the form of information discs and training stations may be used to train employees in areas and topics such as these.

- *Front desk*

**Tasks and concepts:** Guest-registration status, room-key distribution, communications with guests, concierge-type information awareness, customer complaints

- *Maintenance engineering*

**Tasks and concepts:** Electrical and environmental systems, equipment operation, safety procedures and emergency plans, facility information, purchasing

- *Housekeeping*

**Tasks and concepts:**

Room turnover procedures, laundry, equipment operation, chemical use, sanitation information, security precautions and policies, hotel services

- *Management and personnel*

**Tasks and concepts:** Work scheduling, employee benefits, merit programs, disciplinary procedures, time management, corporate culture, goal setting, affirmative-action training programs, safety rules and regulations (OSHA standards), general accounting and auditing

- *Food service*

**Tasks and concepts:** Food production; equipment use; recipe standardization; menu development; food-safety and sanitation procedures; mixology; wine selection and service; table service; personal hygiene; catering management; purchasing, storage, and inventory management

- *Sales and marketing*

**Tasks and concepts:** Sales calls, strategic-marketing plans, special events, discounting, guest services, VIP procedures

Managers should make decisions to purchase and implement interactive hardware and software programs only after they have been trained to evaluate informational programs. Determining which products are available and how to integrate the technology into the organization is an integral part of the purchasing decision.

#### Purchasing Multimedia Systems

Companies involved in the production and sale of multimedia systems, such as Amiga, Apple, Gateway, IBM, Intel, and NCR, have become involved in the purchasing decisions of client organizations. They have found that to ensure customer satisfaction and proper utilization, they must help clients select and implement the systems. The companies use special pricing, joint-labeling, and partnerships to attract organizations to purchase their products and services.

Managers responsible for sifting through all the available bells and whistles may feel overwhelmed by the decisions they must make about the purchase of systems, programs, and services. The following guidelines may help them.

- (1) The program should be appropriate for the audience.
- (2) Interactivity must increase the involvement of trainees with the subject matter; each form of interactivity or screen presentation must be necessary to the ultimate goal of *instructing*, not just entertaining.
- (3) Instructional objectives must be kept in mind during the development stages, and interactivity must be perceived by users as proceeding at a comfortable pace.
- (4) The equipment should allow both the instructor and the trainee to control the programming

sequence, the pace, and the use of peripherals.

- (5) The equipment should be compatible with existing hardware, expandable for future applications, and covered by a service agreement that offers prompt technical assistance and local support.

### The Multimedia Fit

Computerized training programs offer many interactive and tracking capabilities that can reduce training costs and improve employee learning. Several studies have reported that the higher the interactivity, the more trainees are motivated to seek additional training.<sup>12</sup> Because of the diversity of educational backgrounds of trainees in the hospitality industry, managers must choose systems and programs designed for different levels of learning.

Research has indicated that the most effective interactive technology is characterized by the following traits.<sup>13</sup>

- (1) Allows trainees to learn at their own pace;
- (2) Presents information in brief lessons and gives the user immediate feedback;
- (3) Interjects frequent, pertinent questions that require a response;
- (4) Provides alternative scenarios of the same lesson and various interactions (e.g., if a trainee consistently responds incorrectly to questions after a video segment, the computer switches to another kind of interactivity or a different difficulty level); and
- (5) Addresses literacy and educational levels by offering several versions of the same program (literacy levels are defined by pretest evaluations).

<sup>12</sup>See: G.M. Kern and K.F. Matta, "The Influence of Personality on Self-paced Instruction," *Journal of Computer-based Instruction*, 15, No. 3 (1988), pp. 104-108; E.E. Smith, "Interactive Video: An Examination of Use and Effectiveness," *Journal of Instructional Development*, 10, No. 2 (1987), pp. 2-10; and D.J. Clark, "How Do Interactive Videodisks Rate against Other Media?," *Instructional Innovator*, 29, No. 6 (1984), pp. 12-16.

<sup>13</sup>"Closing the Skills Gap," p. 76.

### Multimedia: Multiple Drawbacks?

Writing in *The Wall Street Journal*, Stephen K. Yoder outlined a number of shortcomings that hinder the widespread use of multimedia in education, including these four major issues: (1) the expense of developing or purchasing multimedia systems and programs, (2) some teachers are reluctant to use the new technology, (3) the absence of an industry standard for software, disks, and players, and (4) obtaining copyright approvals for the thousands of images typically included on a training disk. (See: Stephen K. Yoder, "Readin' Writin' & Multimedia," *The Wall Street Journal*, October 21, 1991, pp. R12, R14.) I have several comments to make about the issues he raises, but first I would add a few more points to his list.

The earliest versions of multimedia software are not user-friendly, regardless of hardware design. While more recent packages are somewhat easier to use, that doesn't help the purchasers who invested in the old software. Second, much software and hardware have been developed and sold, only later to be left unsupported by the developer-manufacturer. Two IBM products are cases in point, although examples involving many different companies exist: IBM dropped support for its Audio-Visual Connection software as well as its touch-screen product called InfoWindow. Today, IBM does not sell InfoWindow and will not service that hardware. Also, IBM no longer supports the software it developed to run on InfoWindow.

Learning how to use existing software and hardware can be an overwhelming challenge. While some developer-sponsored training exists, the cost is prohibitive for most institutions when one adds up training fees, travel, housing, and related expenses. Hiring tutors to lead on-site training programs can be equally expensive, or more so. In a more general vein, knowing what to buy in the first place is a real problem: multimedia versus hypermedia, digital versus optical storage—there is a great deal of information to acquire, and seemingly little agreement about what works best.

The last issue I'll raise as an impediment to multimedia is the high overall cost of the software investment. By the time a user has purchased the program, learned how to use it (perhaps by hiring a consultant or attending a company seminar), and then purchased upgrades (which may or may not be compatible with earlier versions), the financial outlay can be tremendous.

With respect to Yoder's list that I used to introduce this discussion, here are some additional observations on the points he raises.

**Reluctant users.** Educators at the levels K-12 are the widest users of multimedia and have been aggressive in forming partnerships with companies such as Allen Communication, Apple, AT&T, GTE, and IBM to further the development and use of multimedia. Even though multimedia systems still may be cumbersome and difficult to learn how to use, in 1993 it is probably too simple to assert that a substantial population of educators at any level refuse to accept the technology. Research on this teaching technology shows time after time that learning is more enjoyable, students' attention spans are longer, and retention is improved when multimedia is employed.

**Compatibility.** Yoder's point regarding industry standards is fast becoming moot. Inter-company agreements and marketing strategies such as the IBM-Apple free-share agreement as well as soon-to-be-available conversion programs make most multimedia programs quite versatile; however, building competitively-priced hardware that can handle that software remains problematic for many manufacturers.

**Copyrights.** Yoder's main point about protected media—that the sheer volume of required copyright approvals may be prohibitive—is valid. There are, however, alternative solutions to using copyrighted material, such as public-domain graphics, audio, and video that can be purchased for the sole purpose of being reproduced. In any event, educators and students generally have little problem securing permission to use copyright material for not-for-profit projects. But the time it would take to secure thousands of approvals is, of course, a matter to be considered.—K.J.H.

Such programs not only track responses to each item, they give immediate feedback. Moreover, they can be used in supervised or unsupervised situations, by individuals or small groups; and they can be accessed at the user's convenience.

In the hospitality industry, they can be used for training as diverse as quantity food production and front-desk operation. For trainees, the experience is as if they were making decisions while actually operating equipment, handling guest problems, or planning the opening of a new property.<sup>14</sup> Multimedia can also be used as an information center for the company and to orient guests to its services.

Interactive training has proven cost-effective for organizations that in the past have had to relocate employees temporarily for training (a common occurrence in the hospitality industry). The costs associated with travel, room, board, and absence of the employee can be avoided. And transporting the systems to other sites is inexpensive.<sup>15</sup>

### A Consistent, High-Quality Message

The primary advantage of computer-based training is that the message is consistently delivered.<sup>16</sup> Other benefits are:

- (1) The discs themselves may last longer than printed materials, videos, and audio cassettes,
- (2) Costs decrease as use increases and as a firm's units become equipped with their own systems, and
- (3) The multimedia aspect of the programs is invaluable for quality training.

Also, in some instances (depending on the medium and distribution), multimedia packages are easier to update than, say, printed resources. Although no training program is complete without human

<sup>14</sup>"Closing the Skills Gap," p. 76.

<sup>15</sup>In September 1991, we found the cost of insurance and ground-transportation charges to relocate an interactive system from Chicago to Tallahassee totaled \$495, much less than the cost of temporarily relocating trainees and trainers.

<sup>16</sup>P. Hosis, "Adopting Interactive Videodisc Technology for Education," *Educational Technology*, 27, No. 7 (1987), pp. 5-10.

support or supervision, few trainers—no matter how talented—can compete with the instructional capability of a well-designed multimedia system.

An interactive program should present a consistent message using a variety of methods (video simulations, case studies, animation, graphics). The trainer or instructor should have control of how the message is delivered and how the information is presented and evaluated. The information presented should be of high quality. The program must be on the same educational level as the target audience and involve the trainer in a manner familiar to the audience. Programs that stand alone must offer assistance; for example, help screens, definitions, and alternative scenarios.

Alternative formats provide the flexibility of experiencing the information in a variety of ways. For instance, after a brief introduction a trainee learning proper sales technique might be presented with several scenarios commonly encountered during a sales call. The video action is programmed to stop during the scenes and have the trainee respond to questions about the situations presented. The question-and-answer activity lets the trainer know what topics may require further instruction.

### Future Directions

The forms of multimedia continue to evolve with the development of new capabilities and formats. The new systems combine peripherals that are both affordable and common to most organizations. For example, PC-TV ("personal computer television") and PIP ("picture in a picture") are two systems that couple a regular television with a personal computer, giving the user the option to toggle between videotapes and the work being done on the computer. Those systems are useful for organizations that are not prepared to invest in state-of-the-art multimedia systems.

However, for organizations that are ready to incorporate cutting-edge technology into their training programs, the

systems that give the trainer the greatest control and flexibility over program development are those that are bundled with authorship software. The systems and their programs are considered development centers. The software affords the user access to media from optical resources as well as tape and immediate input and allows novice users with little or no programming experience to develop their own programs.

One such system, the Ultimedia Multimedia Model SLC, featured by IBM, comes bundled with software that permits trainers to develop courses that incorporate video, audio, text, graphics, and animation through the use of authorship programs such as Toolbook and Audio Visual Connection.

### Techno-Tools

Would-be users of interactive multi-media technology must educate themselves on the terms, concepts, and methods of implementation. Proper selection and implementation of the programs will improve learning and lower training costs. Most skills that are required by the hospitality industry can be communicated via multimedia systems. The most successful training programs, however, combine multimedia training with peer-group sessions, question-and-answer time with a supervisor, and textbooks and workbooks that trainees can take home.<sup>17</sup>

Interactive multimedia technology is permitting the world to communicate like never before. The "techno-tools" of the 1980s and 1990s are helping organizations save time and energy and improve communication. In a time when saving money, providing better services to customers, and reducing turnover is vitally important, the hospitality industry needs to invest in systems that offer the capability of using many forms of media, that are simple to operate, and that are based on the type of equipment that can be upgraded in the future with multimedia enhancements. **CQ**

<sup>17</sup>M. Magel, "Decision Criteria for Going Interactive," *Video Systems*, October 1986, pp. 42-54.