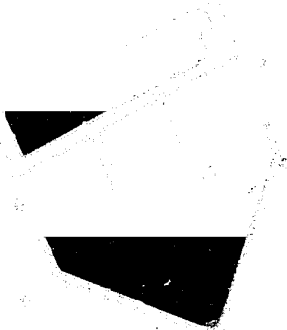
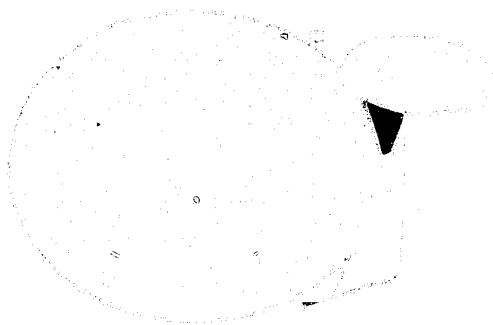


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William S. Sessions,
Director

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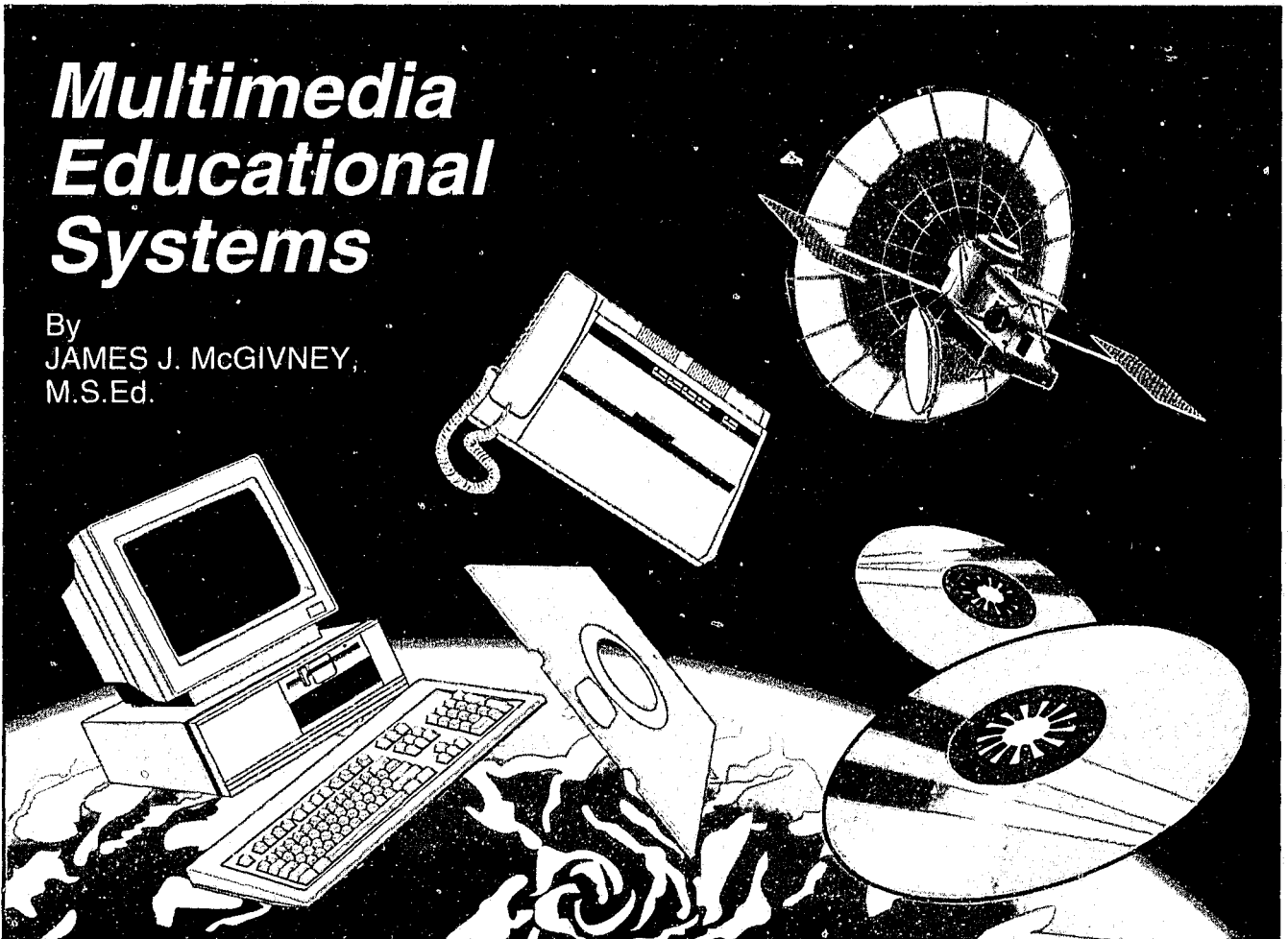
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Multimedia Educational Systems

By
JAMES J. McGIVNEY,
M.S.Ed.



In the late 19th century, the educational reform movement embraced the Industrial Revolution and the application of "modern" business methods to improve the educational process and to provide a viable workforce for American society. Today, the issue centers on law enforcement's ability to adapt to a "technological" revolution to improve its training and education system. In other words, can recent advances in multimedia educational systems ease the problems associated with shrinking law enforcement training budgets?

Before such a discussion begins, however, readers must understand what constitute multimedia-

based educational systems. In general, these systems use or combine several available technologies. These include not only the traditional audio-visual instructional aids, such as films, overheads, and videos, but also the use and application of newer technologies, such as teleconferencing, satellite broadcasting, computer-based training, interactive video, compact disc, and laser disc technology.

Knowing what technology is available, however, covers only a portion of the instructional process. Trainers also need to know how to apply or incorporate this technology into their individual educational systems. Their ability to do so is

limited primarily by two factors—imagination and funding. Is funding prohibitive, or can the long-term applications of advanced technology be cost-effective and alleviate the training budget crunch?

This article examines satellite broadcasting and computer-based training. It covers their practical applications, while considering advantages, disadvantages, and cost-effectiveness.

SATELLITE BROADCASTING

Satellite broadcasting and telecommunication began in the late 1960s with the successful launch of the TELESTAR satellite and rap-

idly expanded. Today, most Americans take advantage of its capabilities in various ways. For example, nightly television news programs broadcast live, fast-breaking world events. Portable cellular telephones beam their long-distance messages from coast to coast, bouncing radio waves off satellites orbiting hundreds of miles above the earth.

Satellite broadcasts also allow the airing of educational programs in many American corporate educational systems. One private corporation's system covers 20 major metropolitan centers and 23 plant sites. This amounts to over 200,000 days of training to employees annually.¹

Those interested in training via satellite television can look to several sources that routinely prepare and air educational programming. These organizations make their programs available either free of charge or through subscriptions. Even though they pay for satellite broadcasts, subscribers obtain training at a cost well below what they would have to spend to organize, develop, and produce in-house programs.

For example, the Law Enforcement Training Network (LETN) provides an educational satellite broadcast service on law enforcement-related topics for a set monthly fee, depending on the size of the subscribing agency.² On LETN, nationally recognized law enforcement experts provide training on topics ranging from Constitutional law to drug identification procedures. By using the available technology, personnel serving in even small police departments receive timely, pertinent, and professional instruction.

“
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”
Special Agent McGivney is assigned to the Drug Enforcement Administration's Office of Congressional and Public Affairs in Washington, DC.

The FBI and the Kansas City, Missouri, Police Department sponsor six teleconferences annually over the Law Enforcement Satellite Training Network (LESTN). These programs also cover a wide array of law enforcement topics and are offered free of charge. Agencies can receive broadcasts if they have a C-Band dish antenna and a tuner or if they have access to facilities with satellite receiver equipment.

If used selectively, satellite television provides a viable and effective alternative for efficient delivery of basic and inservice training programs, especially in areas where information must be communicated with consistency and timeliness. However, to be an effective educational delivery system, the system must be interactive. That is, students must be able to ask the instructor questions, and the instructor must be able to provide immediate feedback and to reinforce lessons where necessary.³ One educational system that particularly meets these criteria is computer-based instruction.

COMPUTER-BASED INSTRUCTION

More than 25 years ago, Donald Blitzer of the University of Illinois designed PLATO, an acronym for Programmed Logic Automated Teaching Operator. PLATO, a computer-based instructional system, used a mainframe computer, the only computer technology available at the time.⁴

With the development of the personal computer, more commonly known as a PC, the realm of computer-based instruction (CBI) expanded considerably, making it not only available but also commonplace in today's society. A recent U.S. Census Bureau study reported that nearly one-half of the Nation's children use a computer at home or in school, up from less than one-third in 1984.⁵ Sixty-seven percent of Fortune 500 firms provide computer-based training to their employees at all levels.⁶

With CBI, the computer serves as the instructor. It conveys information and develops students' skills

Benefits of Teleconferencing

- Allows subscribers to receive best instruction available from qualified instructors
- Delivers consistent quality educational programs
- Provides current and timely coverage and discussion of contemporary issues by specialists
- Ensures availability regardless of viewer's schedule through repeat programming
- Allows resource material to be video taped and developed for future use
- Reduces the cost of instruction since teachers reach a larger number of students

(Source: L. Davis, "Satellites Bring Training and Information to the Law Enforcement Community," *Satvision*, 1990.)

by acting as a teaching machine, a simulator, a resource, and a tool.

Computer as a Teaching Machine

As a teaching machine, the computer presents principles and theories step-by-step and allows the student to apply them. It then tests understanding, gives immediate feedback, and assigns instruction based on the individual student's responses. The computer allows students to work at their own pace; yet, it ensures that the content of instruction remains uniform.⁷

The computer also scores tests, reviews material for examinations, and provides routine instruction and drill. It saves time and frees instructors to engage students in exploring more advanced materials.⁸ The Drug Enforcement Administration uses a computer bank of 1,000 questions as a database for developing examinations for its basic agent trainees. The computer base allows

for random, yet consistent, testing of materials presented to all trainees during their entry-level training. It saves innumerable workhours by composing and preparing test questions, thus allowing instructors to conduct research or perform other duties.

By using a computer, students can take as much time as they need to practice, learn, or repeat the lesson. The mechanical teacher never tires.⁹

Computer as a Simulator

As a simulator, the computer permits students to manipulate individual parts and observe the effects of their actions on the rest of the model. The flight simulator used to train airplane pilots serves as a classic example of this type of computer-based instruction. Students manipulate the controls like those on a real airplane and see the results on the video screen. Serious mistakes produce "crash" results.

Computer simulation exposes students to real-life situations, which would otherwise not be possible because of cost, time, safety, or other factors. By using computer simulations, students gain experience and take a more active role in their training than would be possible in the traditional classroom.

"Shoot-don't shoot" firearms training and instruction in pursuit driving are two law enforcement topics in which computer simulations can be applied. In "shoot-don't shoot" training, computer simulators, coupled with the interactive capabilities of the video disc, test students' skill and judgment in the application of deadly force, according to current departmental policy and law, in a safe, controlled environment.

The same holds true for driver training, particularly pursuit driving. Driving simulators consist of vehicle operator controls, video displays, and audio generation capabilities, orchestrated by a microprocessor, to provide a simulated vehicle driving experience. These simulators re-create both the visual experience and "feel" of driving an automobile. They give the driver a three-dimensional view, which includes roadway ascents, descents, banked turns, and bumps.

The computer allows the simulator to vary the vehicle's response, such as turning radius, with its speed and the driver's reaction. Instructors use the computer's feedback to evaluate student performance.

The cost of computer simulators varies considerably. A firearms system ranges from \$35,000 to

\$65,000 and can be tailored to the specific needs of departments. Driving simulators, which cost less than \$20,000, equal the price of one training vehicle and last considerably longer.

Computers as a Resource

The computer can connect students to a network of people and databases through the use of a data link (modem). A number of inexpensive computer-link services provide access to various resource materials. These link-ups allow students to expand their knowledge base and to hone their professional skills.

Computers as Learning Tools

Students can access computers to learn a number of law enforcement skills, such as reconstructing accident scenes, writing investigative reports, preparing administrative charts and graphs, compiling departmental budget reports, etc. When coupled with other such technological advances as VHS video, laser discs, and CD-Rom drives, the options for interactive, visually enhanced computer-based instruction are almost limitless.

Classrooms equipped with computers, printers, scanners, laser disc and video tape players, modems, CD-ROM drives, and software programs become true multimedia environments. While purchasing computer hardware and software can impact on the limited funds departments allot for training, computer-based instruction permits more subjects to be covered in less time, which results in an obvious cost savings.

According to Jack Bowsher, in *Educating America*, the cost of technology adds only 2% to 4% of the overall cost of a training facility. Yet, Bowsher asserts that learning increases 20% to 40% in such facilities.¹⁰ Other studies support his findings. In one study, a sixth-grade class completed a self-paced computational math program in 60% of the time normally required, and test scores remained as strong as in the years before CBI was initiated.¹¹

OTHER CONSIDERATIONS

While economic issues occupy the forefront of discussions on computer-based, multimedia education, acceptance of the concept also affects its use. A trainer's resistance to change is less easily overcome, since training styles need to be integrated into computer-based instruction.

“
...police executives and trainers must...realize that...the use of technology is the future of law enforcement training and education.
”

Trainers will have to adapt the new electronic technology to support their traditional text-based drills and practice sessions. They will have to alter their instructional approaches and broaden their perspectives about what students should accomplish in the classroom.

CONCLUSION

Multimedia instruction is a viable and affordable method of teaching the skills needed by today's police officers. It combines technology with educational efforts that pave the way for cost-efficient instruction with interactive learning.

To optimize the effects of multimedia instruction, however, police executives and trainers must accept this technology to apply it successfully. They must realize that active rather than passive learning and individually centered instruction through the use of technology are the future of law enforcement training and education. ♦

Endnotes

¹ Jack E. Bowsher, *Educating America* (New York: John Wiley & Sons, 1990).

² Monthly subscription cost to LETN is based on agency size: 10 officers or less, \$788; 11 to 30 officers, \$388; 31 to 100 officers, \$488; 100 officers or more, \$588. In addition to satellite training service for a 1-year period, the fee includes all the necessary equipment required to receive the signals. "LETN: Law Enforcement Television Network," *Law and Order*, 1989.

³ *Supra* note 1.

⁴ Thomas Wilkerson, "The Use of Computers in Police Training," *The Police Chief*, April 1984, 48.

⁵ Barbara Vobejda, "Children in the Microchip Age," *The Washington Post*, May 19, 1991.

⁶ Mary Esparza, "Personalizing C.B.T.," *Info Systems*, January 1987.

⁷ Robert Hermann, *Teaching and Learning With Computers* (San Francisco, California: Jossey Bass, 1988).

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ *Supra* note 1.

¹¹ David Bennet and D. Thomas King, "The Saturn School of Tomorrow," *Educational Leadership*, May 1991.