

the secret is out

Gerald D. Paulsen

The computer used to be a secret force hidden away in a strange facility somewhere, presided over by a strange breed of people who spoke most of the time in strange tongues. No more! Today the computer is everywhere . . . in business, industry, education, and government.

Computer capability is increasing so fast that today's minicomputers have more capacity than the large-scale machines of a decade ago, and their cost is decreasing steadily. Computers accept data from an increasing number of input devices and produce output on a wide variety of machines and media.

Computer languages are simpler to use and closer to "people language." Microcircuit technology makes it possible to incorporate computer logic in a constantly expanding array of devices to provide electronic sensing and decision making to an unbelievable variety of everyday tasks and problems.

The Extension Service nationally is approaching a crossroads in educational program delivery technology. A choice must be made soon between continuing to rely on face-to-face contact for the major part of its program delivery or the accelerated incorporation of . . . learning modules designed to provide individualized instruction. . . .

Computer Challenges

This newest revolution in the electro-mechanical field offers new challenges to us in Extension. The computer is the universal machine. It's the only one of man's machines that extends the power of the brain. By so doing, it extends the power of all of a person's other abilities as well because it can evaluate the conditions and alter functions through the control of other machines.

What's the Next Step?

Soon the farm operator's day may start by dialing a phone number and turning on his TV set. Current weather and temperature conditions will appear on the screen. The operator will choose advisories about planting, cultivating,

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irrigating, fertilizing, and other cultural practices. Localized information about weather, crops, markets, and a host of other subjects can be available as well as current tips and vital information for all the members of the household.

As the farm operator starts his day, using microcircuit controlled machinery and equipment, another family member may start up the home computer. After updating the week's accounts, further data may be entered to calculate ration formulations, fertilizer applications, market strategies, quantities and densities of sprays, or dozens of other essential kinds of information.

*Revise Program
Delivery*

In developing our educational programs, we need not only to teach people how to live with and use this power, but to revise our methods of program preparation and delivery to take advantage of the power of the computer.

*Eliminate
Mystique*

To take advantage of the explosive developments in computer technology, should Extension agents plan to become proficient computer programmers and systems analysts? No! The increasing capabilities of computer hardware and programming languages promise to simplify the program development process and take away some of its mystique.

**Computer
Networks**

Advances in communication technology make it possible for computers to communicate with terminals or with other computers over great distances. Extension agents in Florida, Maine, and New Mexico can use the same computer located in Minneapolis to answer their questions. Truly, the computer has become available to all of us as a useful tool.

Universities, government agencies, and private industries have developed computer networks that are available to prospective users on a subscription or cost-of-use basis. There's a wealth of data bases and problem-solving programs available in these networks. They're as close as the telephone, for these kinds of resources are available through terminals that operate over toll-free telephone lines. Fortunately, these are among the least expensive, easiest to operate, and most universal of the terminals available.

Indiana System

State Extension Services are developing computer networks that will bring the computer into the county Extension office. Indiana is installing a network of microcomputer-based terminals to enable a host of administrative and programmatic jobs to be done on the computer in the county office and still provide access to the large computer at Purdue University.

*Wisconsin
Application*

Electronic mail is a reality. The University of Wisconsin has a statewide network in operation to provide instantaneous access to any user for transmission or receipt of messages. Many corporate and government organizations have or are developing similar capabilities.

*Become Familiar
with Networks*

Extension professionals need to become familiar with the kinds of computer networks available to them to determine whether data bases or problem-solving programs are available to meet their needs. If not, contact with computer professionals should be initiated to explore the possibility of developing the needed materials.

*Imaginative
Uses*

Extension people have used computers in the delivery of their educational programs for several years, sometimes overcoming substantial difficulties in the process. Imaginative solutions have been devised to make use of computer technology in what appeared to be a new and unusual way to manage people. Incorporation of these programs into national and regional networks has taken place.

Equipment

Terminals are available that weigh less than 15 pounds, have the telephone connectors contained in them, and are designed to be truly portable. Also terminals are available that can be attached to TV sets to operate them as TV-type terminals for use with large groups. At least one terminal is small enough to fit in a suit jacket pocket. Battery-operated it can be used anywhere there's a telephone.

The home computer, for long a dream of the "computer freak," is a reality successful beyond the most optimistic expectations. It's inexpensive and easy to use. Its market potential extends beyond the hobbyist to the small business and the individual who wants to keep track of and process data and control mechanical functions in the home or business. Pre-written programs are available that offer the capability to do a wide variety of processing without the need for programmer skills.

**Software
Development**

The development of computer software should become as important a part of the subject-matter specialists' responsibilities as preparation of publications. Increasingly, videotape and computer-assisted instruction supplement classroom and laboratory experiences in university resident instruction.

Cost

The cost of developing and operating computerized educational aids must be dealt with. A few of us who enjoy

working with computers have been responsible for most of the program development within Extension. Often, the development has been "bootlegged" to cut costs.

The market for these products with our clientele is expanding, so accelerated development will be necessary. Funds should be allocated with the understanding that quality products will help us reach new and larger audiences without additional professional staff.

Shared Efforts

To offset the cost of development of computer-based delivery systems, shared efforts should be explored. Regional or national projects are one way to spread the cost. Another is to develop materials so they're reusable. That is, they may be suitable with different groups of clientele, in different program areas, or on a recurring basis as new members of the clientele base emerge.

Summary

The Extension Service nationally is approaching a crossroads in educational program delivery technology. A choice must be made soon between continuing to rely on face-to-face contact for the major part of its program delivery or the accelerated incorporation of the new technologies available into integrated, comprehensive, learning modules designed to provide individualized instruction. Which path do you think we should choose?