

films. Today, such a notion would be seen as extremely naive. The novelty of movies in classrooms has worn off. The need for human interaction in the classroom has been reconfirmed. So movies and other audiovisual aids are seen as useful tools for specific educational purposes, but not as panaceas.

Both technologies have had significant effects on the world in general, but the effects of computers have been even greater and more precipitous than those of movies. Therefore, a realistic education today should prepare tomorrow's adults to function well in an age of computers, just as past education should have prepared today's adults to live in a world of multimedia messages. In both cases technology should affect the *goals* of education because technology is changing the world. Specific technology should be used to achieve those goals only if it is more effective than other means.

Because the effects of computers on society are great, because their technology is changing so rapidly, because computers are expensive, and because so much mysticism surrounds them in the minds of most people, both the opportunities and dangers of computers in education are greater than for previous technological innovations. What can we do to take advantage of the opportunities and avoid the dangers?

Perhaps the most important single thing for decision makers to keep in mind is that the existence of computers changes the goals of education.

Since computers can do much of the pedestrian, unimaginative work, some skills may be less important to people in the future. On the other hand, since computers can calculate with great speed, we will need people with the imagination and judgment to decide what computations should be made and to interpret those computations after they are made. Thus, education today must emphasize problem solving and thinking even more than it has in the past.

Are computers particularly well suited to teaching problem solving and thinking? In the long run, computers will not educate or motivate the average student any more than movie projectors do. The programs run on the machines will determine their effects. Experts estimate that over 90 percent of the instructional computer programs presently available are designed to teach lower-level skills (computation, symbol manipulation, spelling, etc.) rather than the higher-order skills needed in today's world. Machines by themselves will not improve education, but the ways in which they are used may help us do a better job.

To set up programs that will educate today's children, we must first agree on some goals. Problem solving and thinking must be foremost among those goals. Then, we should examine various educational materials (textbooks, computer programs, films, etc.) to see if they help achieve the desired goals. If we need hardware (a specific computer, a projector, a piece of chalk, etc.) to help deliver the educa-

tion, we should buy it if it seems more likely to help achieve the desired goals than equally expensive alternatives. We should not buy a piece of hardware simply because it's the "in" thing to do this year, nor should we buy software designed to train children to do what a \$5 calculator or a \$300 computer can do better. We should evaluate computer software as carefully as we do textbooks (and we should evaluate textbooks much more carefully than we have generally done in the past).

The all-too-common practice of using computers as teaching machines is likely to produce children who consider computers to be the ultimate authorities. Computers used as teaching machines may produce people who can perform some low-level skills efficiently, but they will do little to improve higher-order skills unless programs are carefully developed and intelligently chosen by schools. And the use of computers as teaching machines is almost certain to produce students who don't like computers and don't understand their place in the world. The crucial thing for educators to remember is that the numbers and kinds of computers in children's hands are far less important than the quality of the ideas in their minds. □

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Textbook Selection

CONNIE MUTHER

What "Training" Should Be Provided?

Two national conferences on the textbook¹ recommended that anyone who evaluates textbooks should have "training." What they did not identify is what this training should include. The following is a composite of recommendations from individuals² who

have special expertise in textbook selection. I asked each expert to identify the three most essential topics or critical areas of training that districts should provide. Although few could confine themselves to three items (nor could I), this list seems to offer the

"basics" for anyone involved in the selection of textbooks at the local level.

1. *Provide a plan for adoption.* Anyone involved with selection of new instructional materials should be provided with (or should help determine)

the district's plan for the adoption. This would include an overview of what will happen, when it will happen, why it will happen this way, and who will be responsible. This should prevent misunderstandings from developing into problems as well as keep those involved mentally attuned to the same clock.

2. *Provide a review of the latest thinking or research.* All the experts agree training should include a review of the latest thinking or research³ in the subject of study. If those who evaluate textbooks are not aware of what is possible—what could and should be—how can they select something better?

Harriet Tyson-Berstein feels this review of the research should also include a historical/social/political/economic overview of the state textbook adoption process and how this affects textbooks and publishers.

3. *Teach how to assess, rank, and define district needs.* The most essential training should explain how to determine what is most wanted by the district in a new textbook program. Basically, this is called a "needs assessment," but some felt this term was overused and meaningless. David Elliott describes this step as "learning how to describe the district's educational goals and needs in order to get at what it wants in the curriculum and ... what they expect the textbook to provide." Jean Osborn says each district "should be aware of achievement problems. The textbook selection should be directed toward solving the biggest problems." Whatever they are called (needs, goals, wants, problems,

expectations, or criteria), once these items are identified, they must be ranked in order of importance⁴—for all the experts agree evaluation should be in-depth and should focus on a manageable, realistic number of items. ("Manageable numbers" ranged from three to six items.)

Jean Osborn gives this as an example: if you know the students in your district have a problem with vocabulary, and they're not getting the support they need from parents, then evaluation of textbooks for instruction and use of vocabulary becomes important for that district. In another district, where it's not a problem, it needn't be evaluated.

The experts also emphatically agree that whatever is evaluated must be clearly defined by the selection committee so that all committee members evaluate new textbooks "through the same lens." Roger Farr recommends that committees examine both good and bad examples of each item to be evaluated, so that all members have the same points of reference in looking at the new textbooks.

4. *Teach how to evaluate textbooks.* Finally, training should include how to evaluate new books. Although there is disagreement on what is *most important* to look for, all experts feel that committees must look beyond the terminology, publicity, copyright, readability formulas, and labels—and focus on the kinds of thinking each textbook demands of children and the clarity of information for the district's target population.

Specific topics of training these individuals recommend include: identifi-

cation of what textbooks can and can't do—and what a good book should do well; how students learn and how textbooks contribute to students' acquisition of knowledge; techniques for trying to see the books through the eyes of a child; and ways of analyzing the quality of writing and instructional design.

Most important, all of the above training should happen *before* committee members begin to examine any new textbooks. □

1. Interstate Consortium on Instructional Materials, March 1984, Tallahassee, Florida; and Textbook Reform: A Cooperative Agenda, June 1985, Washington, D.C.

2. These individuals include Bonnie Armbruster, Jan Dole, David Elliott, Roger Farr, Connie Muther, Jean Osborn, Harriet Tyson-Berstein, and Arthur Woodward. In next month's column, I'll identify their special areas of interest and how they can be contacted for more information.

3. Suggested sources of research summaries appear in "Reviewing Research When Choosing Materials," *Educational Leadership* 42 (February 1985): 86.

4. I use a 3 = *high*, 0 = *low* ranking system for a large number of items, with a maximum number of points allowed. The maximum number is determined by multiplying the number of items by 1 1/2. Such a ceiling on total points forces the group to make real choices between items of most importance.

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Technology

LEWIS A. RHODES

Getting Off the Anti-Bandwagon Bandwagon

It's happening again! Within a predictable number of years after a new idea is introduced in education, articles and speeches begin to appear deriding educators for climbing aboard every passing bandwagon. This time it is

computers. With increasing frequency, cautions such as these appear.

We must not be swept away with the emotions of the moment for the panaceas of the month.

We're apparently content to project casually into the future the facts of today, which always masquerade as the trends of tomorrow.

The serious question these concerns bring up is *not* why some educators appear to be seduced by new ideas, but why other educators feel they have to put them down. Just what is a "bandwagon," and who is being taken for a ride?

Bandwagons, and the innovations

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