

Criteria drawn by professionals will help us choose and adopt wisely.

Professional Educators: Policy Makers or Technicians?

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TECHNOLOGY'S established position in the educational process is clear. It is found in abundance in research, education literature, and most dramatically at the various conventions by way of intriguing, sometimes diabolical appearing, displays and products. In the design of new school facilities it has even become the key factor around which some plants are built.

The Dilemma

Many persons have been at least generous in their claims for the various devices and concepts. They claim such remedies as increased efficiency and effectiveness, individualizing instruction, putting machines and materials in a central role ("putting a heart in a school"), and freeing teachers to do professional things.

The resisters refute most of the arguments and clinch their objections with "technology dehumanizes education." Nothing, they suggest, can replace the teacher. They have made up their minds and resist further encroachment of electronic and mechanical monsters in "their" school.

Some technological devices are relatively useless. Others are detrimental to valid goals. It is often difficult to identify which are the rotten eggs.

Does technology offer a breakthrough? If so, how can this best be done? How choose the real gems?

We need some objectives and decisions—some measurement of relative values.

Key Role of Educators

A key role of educators is that of understanding and interpreting the *why* in education. It may be important whether to teach French or Swahili in our schools; it is more important that we do so in the light of purpose—such as possible use in travel and reading. Use of language laboratories or ETV is important only in terms of *goals*.

The technician deals with the details of an intermediate product. While es-

sential in the total process, this is akin to putting nuts on bolts in an automobile assembly line—essential but *hardly* important without the total auto design.

The old information <education <knowledge <wisdom progression chain helps assess technology's role. Information is not education. Without it, education could not exist. Acquiring it does not provide knowledge. However, the intermediate goal of information accumulation is essential or there is no education.

Technology can provide information effectively. Refined technologies multiply opportunities for providing information. Educators should increasingly focus attention on the *policy* matter of how to provide necessary information for *appropriate variety and mix* with other educational experiences.

Changing Sociocultural Scene

Educators have little enough time to keep programs current using means now in the system, let alone evaluating new technology. However, the pressures of change create a climate for acceptance which might not otherwise be present and should be capitalized upon. A little comprehension of the contributions made by Title III projects helps us realize that the current social scene is amenable to innovation. The pressures causing need for quick decisions can allow for innovations and change which might otherwise be impossible.

Attempts to reach beyond *intermediate* goals with technology are likely doomed to failure. For example, computers can aid greatly the scheduling of classes for students. However, computer scheduling must be supplemented by a review process involving personal, professional attention.

Technology is not likely to provide overarching *goals* for education or deal effectively with the *why* questions of education such as why we would teach French instead of Swahili, or with the nuances of human motivation and trends. Subtle changes driving one generation to embrace new or different values must be assessed. Such matters require the best thinking of sensitive, perceptive professionals who can assess data and insights of others in light of products or processes of technology dealing with solving intermediate goals.

Target Areas Individualizing Instruction

Technology can be used to individualize instruction—and to humanize instruction. Its individualizing qualities are easily seen in the technology-laden learning carrels such as proposed in an article by John Lyon Reid and Archibald Shaw in "The Random Falls Idea" in *The School Executive* magazine a decade ago. Actual ideas for similar use are currently under consideration in such plans as the Education Park Plan in Anniston, Alabama, and programs in Seattle, Washington, and Maine Township, Illinois.

Humanizing Education

Student perception is fundamental to the learning process. Various forms of technology can be used to treat problems faced by learners as perceived by learners. If it is the *learner's* humanness that we seek to treat—and surely it is

—technology has it all over traditional teaching in humanizing the learning process.

Organizational Problems

Least affected by "technology" is organization. Curricula have been injected with such concepts as Project English and various alphabet programs for science. Not changed is the stereotyped pattern of school organization which holds to 180 days per year, Monday through Friday, a 9-3 school day with various versions of "upset the fruitbasket" activities every hour or so.

This rather uniform organizational plan hinders learning more than it helps. Computers can be used to help alter organization to develop better articulated patterns of study, treat individual differences, and humanize instruction. We should adopt some forms of technology to help solve intermediate goals in organization improvement.

Knowledge Use and Staff Communication

Whether technology can aid in improved knowledge use and staff communication is uncertain. The job in this area alone is enough to tax all our best thinking.

Wise use of the best that technology has to offer in improved communication could free us to deal with the following kinds of policy problems which are not getting proper attention.

1. Better conceptions of school goals
2. Well-conceived and precisely defined curricula
3. Defensible plans for adapting programs to current needs
4. Wise use of *new* knowledge in revamping or molding goals.

Pilot or Experimental Work

Frequently school systems adopt hardware due to reports of success in sister schools. Such evidence is helpful but often either is not well substantiated or the testing procedures were not rigorous enough to warrant acceptance. Commercial firms do some good research on new products. However, extensive well-organized supplementary patterns of testing new products in school are needed. Additional circumspectness could be induced by development of state and national *networks of pilot or experimental schools* chosen for research on hardware.

An air of excitement has been created by Title III work. However, for several reasons, controlled or precise evaluation of the new projects is not of uniformly high quality. Testing of hardware is ordinarily not included, and it will be a *long* time before we learn of the results of most of the efforts.

Through federal, state, or foundation funds or some combination of these, *national and state commissions should be established for the design and control of experimental programs* for testing new hardware. Pilot work should be done in a variety of situations, and reports on the work should be distributed widely.

Not all or even most of the work should be done in a small number of select schools. The measure of allocation appropriateness should be willingness to participate, demonstrated competence, and reasonable potential power for proper use and measurement.

Leadership for Technology

All properly organized school districts have the financial ability to employ "hardware" specialists. What should be the qualifications for such persons? Should they be technicians thrust into education to apply their trade to the learning process?

Or, should they be educators whose responsibility it is to maintain currency on technology and correlative implications for learning? The potency of many of the products and the amount of money devoted to hardware argue for the latter approach, and the rapidity of change dictates early refinement of preparation programs to meet this need.

Measurement of Results

Technology is most likely to be used effectively on intermediate goals in education and certain types of staff development. In any event, effects of use ought to be measurable. Indeed, most of the measurable effects should be quantifiable. Measurement will require more careful definitions of what we seek to achieve. Procedures for use also need to be more carefully followed than are most teacher lesson plans.

The process of developing clear objectives and clear, precise procedures also should help more students to comprehend why we do what we do. Such a revelation would indeed do much to enhance education, its image, and its support and at the same time provide new bases for measurement.

Criteria for Adoption

Schools come in various sizes and qualities. All have their own tenor. Each has needs which technology can help meet. Carefully drawn criteria for hardware selection need to be developed to meet these needs.

Any list of criteria used in the selection process should include treatment of whether the item would be:

1. A beneficial part of the learning system
2. Student oriented in application (if not student oriented, are procedures used which *relate* to students?)
3. Related *directly* to carefully defined program objectives
4. Used in such a manner that results would be measurable
5. Manageable and understood by professionals so that the *learning system controls the device*.

A good illustration of careful assessment of new utilization can be seen in Seattle's experiments with closed circuit television and each of the above criteria

could be applied. Their TV station is involved in a broad-scale program of teaching Spanish and other subjects. School officials wanted to test TV use on a more local program.

One school was equipped with a closed circuit system. Failing to meet expectations for individualizing instruction, the program has not been expanded beyond that one school. Officials do not believe that the device has satisfied their criteria for program improvement. While they are still experimenting in that one school, they do not plan to move ahead until *their own* criteria are met.

In summary, technology is nothing without people to control it and react to it; without programs to guide it; without educational policy and theory to maximize its benefits. Technology is being used to enhance and improve the education of learners. It also is being used in some instances with detrimental effects on learners. Wise selection and proper use will not only improve what we do in schools but will allow us to do many things never done before.

Acceptance or adoption of technology in schools is a serious matter. It needs the educator in the policy related role. Technicians can be found to carry out the program details if we carefully define the program and procedures to be followed.

Carefully drawn criteria used by professionals will help us choose and adopt wisely. Otherwise, educators will be in the unenviable position akin to the cheating student who looks over his neighbor's shoulder to copy answers he does not know, let alone understand. ☛

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