

"... New approaches to old problems often provide a needed stimulus, nevertheless there is always the danger of mistaking change for progress."<sup>1</sup>

## Technology—and Progress

SCHOOLS are accepting the fruits of technology. There has been rapid increase in the use of newer media such as educational television and language laboratories. Many schools are using technological devices and materials such as programmed instruction and teaching machines. There is increasing emphasis on new ways of organizing the professional staff and the pupils to use these new tools advantageously.

The net effects of such use of technology upon education can be positive. New tools, techniques and methods of organization can be more efficient and more economical, as has been demonstrated in industry, commerce and by the military. Demonstrably, the intelligent use of new tools can conserve human resources. In education this means that the teachers' dream of providing for the whole range of individual differences is more nearly within grasp and that freedom from routine tasks to treat the more creative aspects of learning can become a reality.

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Despite this great promise, school systems which are employing the new technology often have not been satisfied. Usually two reasons are given: (a) Teachers have failed to use the new material and advanced facilities and equipment. (b) The use of the new tools has not brought about *positive* results as rapidly as expected.

### Why Disappointing Results?

*One reason—miracles were expected.* Many districts are disappointed because the results expected from initiating a new program did not occur rapidly. Often there were unrealistic expectations of what a new approach would accomplish. Very often insufficient time was allowed for the new program to be under way before a subjective evaluation was made.

*Another reason—methods of initiating the program were ill-conceived.* Many school systems which have employed these new tools and techniques have done so after careful study revealed the technology to be useful in reaching their

<sup>1</sup> James B. Conant. *Trial and Error in the Improvement of Education*. Washington, D.C.: Association for Supervision and Curriculum Development, NEA, 1961. p. 2.

own objectives. Unfortunately, though, other school systems have become involved without careful planning and thought. Such premature involvement comes through a variety of reasons—a desire to impress the community may cause superintendents and boards of education to initiate a new program. They may yield to community pressure, or may be out to “keep up with the educational Joneses” in the next district. The results of premature involvement can be disastrous.

Swift movement into “crash” programs usually results in failing to involve those most concerned, particularly teachers and principals, in making decisions. Their judgment as to whether or not to use already limited time and resources for the new project is invaluable. Even more important, they can make the program successful (or unsuccessful) simply on the basis of their understanding and acceptance of it. When there is little planning or participation by the professional staff and when teachers’ needs, readiness and competencies are ignored, there is little hope for the success of the new program. If a teacher feels that he needs more textbooks or perhaps if he has been yearning for a multitext program and finds that money is not available for this approach because teaching machines have been purchased, he is not likely to support the program that results.

A new “crash program” often displaces worthy, thoughtfully conceived programs in an effort to “keep up with” or “move ahead of” the neighboring school system. This approach can lead to confusion and resistance from the staff.

*Reason number three—fallacious thinking.* In addition to the dangers of climbing on the educational bandwagon there is also danger in flocking to the use

of technology because of fallacious reasons, such as the following:

1. Equipment is seen as a status symbol and as a public relations technique. This enables highly visible and glamorous programs to be used to convince the public that since teaching machines are modern—we use teaching machines—therefore we are a modern, up-to-date school system.

2. Quantity of equipment is equated with quality of education. Let’s not fool ourselves! Possession or even use of new equipment and materials is not necessarily progress. “If it’s free, let’s take it” attitudes seem to be growing in some school districts because of NDEA and other federal legislation. These districts rush to buy equipment and materials because they can be purchased at half the cost through use of federal matching funds. Yet it is a questionable saving if the new purchases gather dust because teachers are not ready to use equipment and materials.

### How Apply Technology?

No matter how complex, glamorous or efficient our technology, its products are merely tools. As is true in other fields, the new tools available to educators have no built-in sense of direction or value system. They can be used for appropriate or inappropriate purposes depending upon our wisdom. In education our new tools can serve as improved means toward poor or questionable ends or they can play an important role in helping us accomplish worthy purposes more effectively. These tools are valuable only when applied to help us reach appropriate educational objectives.

It is obvious, for instance, that computers can group youngsters more quickly and efficiently; yet there is little

research to support most grouping procedures used. Unless we develop new and well-founded bases for grouping, employing technology only helps us to do more efficiently that which we perhaps should not be doing at all. Research has shown that sequential information such as grammar lessons can be taught effectively through self-instructional devices and programed material. Research has also shown, however, that if the purpose of teaching grammar is to help the student become a better writer this effort is a waste of time.

If we are to apply our new technology intelligently, we need to examine our teaching purposes and to select tools appropriate to the tasks we set for ourselves.

When the new technology is involved, it is often easier to say, "set goals—then choose tools," than it is to actually do so. Because of the expense of many of the new technological tools only limited material is available and the material has usually been developed with a mass school-consumer in mind. For these reasons the classroom teacher does not usually have a wide choice. Moreover, the material has been developed by a highly specialized group of experts, not always familiar with classroom needs.

Because of the expense and skill required to prepare material, the teacher cannot make the material he needs. If a school system or teacher is committed to using a new tool, the material which is available must be accepted even though it does not meet the learners' needs. The material even may differ in philosophy and method from the teacher's judgment as to what is required to do the teaching job most effectively and may differ from the existing philosophy of the school.

While the tools have no value system, those who organize and control the tools do have a philosophy. It is necessary for

school systems to ascertain that the philosophy inherent in the material will serve appropriate local purposes. Often, participation in a program (air-borne television) commits the participating school district to a value structure of which school patrons may be unaware. While components themselves (TV cameras, the receiver) do not have a philosophy, directors of the air-borne project do have. It is their apparent belief that there is a given body of content appropriate for a large number of youngsters to learn at the same time. The idea that educational television should be used for a significant part of the school day and that acquisition of information is education, is apparently an expression of the value system of the initiators of the air-borne project. To alter somewhat an oft quoted phrase, it may well be that "Our educational tools are shaped and then they shape us."

It is vitally necessary to analyze purposes and then to answer the question as to whether the new tools can help accomplish certain objectives more efficiently and effectively than other approaches with other tools.

Improving the quality of education and developing curriculum should be recognized for what they are—changing the behavior of people. Curriculum development and change cannot be brought about by buying equipment or materials or by initiating crash programs. Curriculum leaders must help teachers, administrators, board members and lay citizens to focus on key issues and work cooperatively to determine educational goals and the manner in which these goals can most effectively be reached. Only through intelligent identification of our purposes and objective evaluation of the teaching-learning environment can we select and apply our advancing technology.

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