Milton J. Gold

Focusing on Teaching Needs

Only intelligent use can help new media realize their potential.

APPARENTLY the most touted uses of new media in education at this time seem to arouse a negative reaction on the part of many people who are seriously and sincerely concerned with learning as a human and individual process.

We agree wholeheartedly that teachers should object to procedures that put their emphasis upon mass education, upon telling instead of teaching, upon the presenting of information rather than on the learner, and upon learning as a passive and receptive rather than as a dynamic and creative process. Actually, though, it is important to distinguish between these unimaginative uses of television, programed instruction, computers and other new technological devices, and other uses that would be more valid educationally. For failure to distinguish between one kind of use and another, there is danger of condemning the instrument itself when what really is intended is rejection of proposed uses of a particular device.

We must remember that television, for example, was not created for education. Education's role in this regard, however, is to find out how the device can be used for instruction, just as other interests have explored television's employment for sales promotion and for entertainment. Similarly, programed instruction was first conceived of for use in training programs for adults in skill and information areas. The armed forces and industry pioneered with this medium, using it for limited and highly specialized objectives, rather than for the total development of individual potential, which is the overall goal of the schools.

Unfortunately some promoters of school use of these two devices, among others, have urged their utilization in ways that are more appropriate to their original uses than they are to education. As a result it is not surprising that many members of the teaching profession seem to condemn in advance both the new tools and their uses.

Potential of New Aids

Yet in many ways still to be explored there is a tremendous potential for enhancing the work of the teacher in new technological aids. Broadcast and closed circuit television, including the availability of TV recordings, can make teaching more individual and more creative, as will be suggested later in this article.

Programed instruction and the teaching machines that present programs need not be used solely to promote the giving of standard answers to standard questions. Recording machines in language laboratories promise to decrease the

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amount of teacher time otherwise needed for drill, while at the same time increasing the amount of time each individual student can have for supervised practice. Sound tapes and television recording offer possibilities for immediate feedback to the student who is trying to improve performance in areas like music, speech, dramatics, dance and other physical skills.

Data processing machines herald a millenium when teachers can spend less time on providing the details needed for guidance and can get back from data storage units more information pertinent to a problem at hand. So, too, automated record keeping may unload from the camel's back much of the straw representing attendance reports and the filing of grades. Dictating machines can reduce the load on the teacher for recording anecdotal reports and for periodic reporting to parents. New copy machines perform marvels in duplication which can lead to preparation of more creative materials by teachers and students alike. Finally, old friends in the audio-visual storehouse are available in improved form to give teaching more concrete support.

Technology and Teaching Needs

More significant than the devices themselves is their utility in meeting instructional needs. We may assume that good teaching needs to supply an environment, curriculum, organization and methodology which observe acceptable theories of learning. Where new technological aids help provide the environment, enrich the curriculum and enhance method and organization, they contribute in a major way to meeting teaching needs. What do we know about the process of learning which may guide us in the use of new devices?

1. We know that learning is dynamic, that the learner must make active reorganization of his experience, that something creative—in the sense of a new synthesis—must take place.

2. We know that learning is individual, that it is related to the perceptions of a particular learner with particular abilities and a particular concept of himself as a learner. Obviously, in order to teach, we must therefore understand the learner.

3. We know that learning is purposive, that the learner must see a goal or meaning in his activity, that he learns best when he participates in setting his learning goals. We know that drill and overlearning are necessary in certain fields and that commitment to a goal motivates repetitive practice.

4. We know that learning is complex, that the learner absorbs not only the material set before him, but attitudes toward the work at hand, values with respect to persons, schools and schooling.

5. We also know that learning, albeit individual, is mightily reinforced when approached in a suitable group setting.

Principles in Operation

How does the new technology help the teacher meet his needs in observing these principles? The passive viewing of television or listening to tapes promises little in the way of learning unless accompanied by meaningful activity. Some stimulation for learning activity may come from a new medium, but it does not replace meaningful activity directed toward a recognized goal by the learner. The fleeting image of a "native speaker"

on a foreign language program needs to be reinforced by genuine dialogue, by skillful in-person evaluation.

A literature program on the air needs to be followed by conversation among pupils with the teacher. Somehow what goes on in the mind of the learner has to "get into the act" if "teaching" is going to be translated into "learning."

Moreover, television and sound tapes are not limited in role as media to be observed; they are also media which invite production. Knowledge of progress has been shown to be an effective stimulus in learning. The school that can make its own TV recordings, either as kinescopes or videotapes, can show the student what he looks and sounds like in many fields in which performance skills (speech, dramatics, music, physical activities, group discussion) are an important goal. Via closed-circuit television, students need not be restricted to viewing the expert; they can also present demonstrations and programs to other groups. Similarly, the audio tape recorder has manifold action aspects where the visual dimension is not of primary importance.

Action as a principle has significance for programed instruction as well. Activity for its own sake—in responding to endless drill items—may lose meaning to the student. To some extent, value is retrieved through the reinforcement the learner secures from the immediate right-wrong response of the machine or program to his efforts. In the final analysis, however, it is a teacher who must guide the student who works with programed material in order to assure significance in the learner's activity.

The importance of the teacher in guiding programed study derives to an even greater extent from considerations of individuality in learning. A program is a standardized learning unit prepared for a standardized learner using standardized (foreseen) approaches. The individual's goals may be at variance with those of the program. His experience, perception of the situation and ability may be outside the best laid plans of the programmer, regardless of the richness of "branching" provided.

The learner may be using an intuitive approach that justifiably skips scores of pedestrian frames included in the standard program. The direction of a highly qualified and sensitive teacher is obviously necessary if the program is to be more than a flashy gesture. The teacher of the future, however, may be helped immensely if computers with storage units can stock necessary information about the learner and serve it to the teacher on demand. In such a case the computer does more than mechanize teaching, which at best is a highly personal process; the computer provides instead a firm base for individualizing instruction.

Other effects in individualization also issue from technology. The reinforcement of prompt evaluation in programing makes individual adaptation immediately available. The program announces to learner and teacher at once the need for review, for practice, for new insight, or for progress forthwith into more advanced work. As teacher and learner see or hear the student on an audio or video recording, growth is more dramatically and immediately perceived.

In demanding that learning material be purposeful, the need for careful guidance in the use of technological aids is most apparent. The temptation to use new media for mass instruction often glosses over the role of the learner's

sense of purpose. Motivation is often viewed as attention-getting rather than as the individual's response to a situation in terms of his needs and goals. The machine may provide temporary titillation for the interest of the learner, but lasting motivation comes from a sense of involvement in, or commitment to, goal achievement or need reduction. These perceptions on the part of the learner come not from machines; they must be aroused from within, and in reference to the school curriculum the teacher plays a critical role in guiding motivation for learning. The machine is neither purpose nor end; it is a means which the teacher uses after having helped uncover needs and goals.

Many of the new devices are presented as aids to individual study. Obviously learning has to take place in the individual organism, but there is a spate of evidence to support the positive effects of the group situation on learning. One of the alleged reasons why the Dalton, Winnetka and Morrison plans failed to catch hold was their relative neglect of group learning activities. A balance of group and individual situations is needed, and the group activities have to be something other than simultaneous viewing of TV screens or illustrated lectures using overhead projectors. Ways must be found to incorporate the new devices in genuine group processes.

Finally, the complexity of learning necessitates critical evaluation in planning the use of technological aids. Our culture depends upon development of creative thinking. Overuse of standardized materials—on teaching machines, TV or language tapes—may impress students with a view of the world that is static and complete. The goal may seem to be mastery of what is known, what is shown and what is tested. Yet the goal of learning is instead the ability to meet *new* situations, not to acquire approved solutions to old problems. Some matter has to be learned, or even "overlearned." For this, certain standardized materials and mechanical techniques seem appropriate. Can the new technology be used to stimulate creative thought? Can it help see the universe as an open, dynamic world?

The answers lie in the focus of teachers. If we keep our eye on dynamic, creative goals, we can find new ways to use these new tools.

"Power Assists" for the Teacher

Well used, new tools in education promise more time for the teacher to work with individuals. They should also provide more information about students to help the teacher in the important task of individualizing his work. Appropriate use of new aids may also give the teacher more time to prepare his work more effectively. Live or recorded television offers a means for bringing the universe into the classroom. Through recording, television makes it technically possible to have a window on the world when the teacher wants and needs this—and not just when a faraway programmer dictates. Through programed instruction, the mechanism for teaching by assiduously planned learning steps is available, and with it the possibility for immediate evaluation of pupil growth and effectiveness in teaching a particular item or unit. Electronic data processors give promise of automated handling of many of the dreary chores of teaching—the details of assigning students to classes (registration), attendance reporting and roll books, distribution of materials, the mechanical details of student personnel

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time would be most professional. We may wish to think of these as criteria by which we would judge whether an area would warrant our giving ourselves to it fully.

1. Does the proposal promise a real enlargement of our thinking beyond our present vision of possibilities? What we are asking ourselves here is whether we think the attainment of new insights or understandings in a given area might make an actual difference. Would such attainment open up the fuller development of capacity as presently conceived or would it help us envision new kinds of capacities with which we ought to be concerned?

2. Does the proposed study give actual promise to involve us deeply in achieving new insights, values, understandings and skills? What we must do in providing vital leadership in instructional innovation is to find those points of concern at which somebody ought to be working and begin. We ought to combine our full resources of professional personnel in this kind of endeavor, as we have long agreed. Teachers have a professional right to expect an opportunity for continuous assessment of teaching needs and to have the kind of assistance that will help them meet these needs more satisfactorily. We all have a responsibility for working on what really does touch us deeply.

3. Will the proposed study be difficult to do? New knowledge of the kind that actually counts accumulates gradually, sometimes with less than the final answer. In fact, if we wanted to build out this idea, we might say that the process of gaining genuinely significant new knowledge (not information only) is always slow; always uncertain and risky; always arduous; always, of course, exciting—and always, finally, inadequate. The search is never over.

Let us return to Franz Kafka's aphorism: "A cage went in search of a bird." This symbolizes for me our current less-than-professional over-concern with the arrangements for learning. Our more truly professional search is one that begins with the learner and his processes and ourselves and our insights—and moves outward from imagining new possibilities for learning to their implementation. Our quest should always be in terms that will support as fully as may be the learner's own search for more knowledge, satisfaction and significance in his total experience.

Focusing

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work, various aspects of preparing and scoring examinations.

New avenues are also opening for research on teaching and learning. Recording of behavior is at last available through sound and picture. The treatment of multiple variables, always a major problem in behavioral sciences, can yield to the speed of electronic computers.

It would be idle to gainsay the threat of unimaginative use of new media. Most of the new devices have within them a potential for stereotyping students, curriculum and teaching; of submerging the individual in the mass; of focusing on passive reception rather than dynamic learning. They also offer a golden promise of adding new and creative dimensions to education, of relieving the teacher of non-creative chores, and arming the teacher with powerful tools in individualizing his work. Where we place our emphasis, how creative we are in using these new aids will determine whether they are used for ill or for good.