BOOKS, PEOPLE, AND TECHNOLOGY

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THUS far in human history, technology has freed man instead of enslaving him. Once he hacked at the ground to cultivate it; now he rides over it on a tractor. Once he broke his back and his spirit by digging ditches; now a machine digs ditches. Once he froze in the winter and collapsed in the summer heat; now through technology he controls his environment. Technology, then, frees man from labor and from the vagaries of climate. It has enriched his physical well-being.

Yet technology has enriched his life in other, subtler ways as well. It has freed him from slavery to time and place. He is freer now than he has ever been to move across the face of the earth, extending both his physical and intellectual horizons. He can search out the ends of the earth, scale its heights and plumb its depths. And in his deepening knowledge of the nature of the world he has found ways to harness its sources of power and put them to work for him.

Books

Of all the fruits of technology most cogent to education, the most precious and incredible is the book. In this instrument man records his failures and his triumphs, his meanness and his greatness. Indeed, it is the book which makes possible education, that complex, imperfect process by which man records and transmits to his offspring his accomplishments, his beliefs, his discoveries in the certain faith that each generation can be more ennobled than the last. Indeed, because of education and through the book we have learned that man is demeaned by slavery of any kind—to his environment, to other men, to ignorance, and we have resolved that by education we will free him in body and in spirit.

There are many educators, however, who fear that if we turn to technology we end up as slaves instead of as free men. They shudder at the thought of teaching machines, educational television, satellites spewing curriculum, and computers entering their domain. Yet it is the educator who has produced the men who have developed the feared technology. The educator is proud of his product, modern inventive man, but scared to death of the products of this kind of man. I would simply ask that the educator take heart. All is not lost. Might not technology applied to the ends of education make us all better men?

The two great basic resources for the learner in our time are books and people. In these two resources are stored the

accumulated wisdom of the race and to them we all turn to learn. And we will continue to do so in any predictable time to come. We turn to them despite their imperfections. We know, for example, that the book is a relatively cumbersome instrument; it is not reality, and it can be read and understood only by those who have acquired the skills to do so. While the book opens the door to knowledge, it also sets up some hurdles to the acquisition of that knowledge. We must know this as teachers, otherwise we would not be so concerned in our current efforts in schools to sharpen reading skills well beyond the first three grades.

And might not our frustrations with the complexities of reading also account in part for the new emphases in science on inquiry and discovery and for our turning to educational games and role playing in the social sciences as a laboratory experience not hampered by lack of reading skill?

People

The other great learning resource is people. In schools we call them teachers, and their function is to do all they can to make it possible that each child may learn as much as he can learn. One part of this effort is devoted to making learning resources accessible to learners. This includes guiding the learner to and through the book as well as interpreting it for him. It also includes the selection and interpretation of other resources—films, tapes, records, and the like. Above all, however, by nature and training most teachers still regard themselves as the best readily available resource for learners, and they are. The trouble is that there are not enough of them, they are of unequal quality, and they are quite unevenly distributed throughout the country.

Is it not possible that we have made knowledge more inaccessible than it needs to be? Because of the nature of the book, we have largely stored it in the library, and because of our perceptions of the teacher we have stored him in the school. We ask that the learner come to the sources of knowledge instead of trying to reach out to him. In so doing we have forced ourselves into dealing with masses of children instead of with *the* child, and we find ourselves concerned with schedules, class size, building programs and the like more than we want to be or should be.

Technology

Technology applied to education may very well free us from some of the restrictions we are now forced to put on learning opportunity. And our first stumbling efforts with television may give us some inklings of things to come. Thus far, for the most part, television has been used in the schools without much attempt to change existing procedures and customs. For this reason, most of the visible efforts to use television show a teacher lecturing or demonstrating. This is in part because the studio teacher has assumed that this activity is at the heart of teaching.

If the use of television has led us seriously to question the validity of this method of teaching, then we have learned something from the process. If on the other hand, we find that lecture-demonstration is valid and can be done effectively by recorded television, then we have freed the classroom teacher to do other things.

We have learned that television can

distribute a picture widely. That we may not like what the picture says or does to us, does not negate the quality television has for distribution. It simply means that we must work harder at determining what it is we want to do in education with this distribution capacity. That capacity may mean that we have finally freed the learner from the slavery to too few minds and too limited experience. We may have found one way to equalize opportunities for learning, to bring the fruits of the book and the teacher to where the learner is.

We have learned that television can free the teacher from the drudgery of necessary but repetitious presentation of fact, data, basic subject matter. Study after study has proven that television can do this kind of teaching job as well as the teacher can. We had better use teachers for more creative things.

We have learned that the potential for lockstep scheduling which exists in the use of television bears a striking resemblance to the lockstep scheduling which exists in most of our secondary schools. Most educators quickly deplore the standard 15 minute or 30 minute television lesson because it has no pedagogical basis. Such reasoning may lead us to examine with some care the 50 minute class period, the seven period day, and the 185 day school year.

We have learned that television has potential for freezing curriculum, for having all classes in elementary algebra throughout a system, county, or state at about the same page in a text on any given day. This potential bears a striking resemblance to that of the textbook in the system, county, or state which provides for single adoption.

In other words, there is no magic in television or in any other technology. It can be used for wise or for stupid purposes. Initially, it will very likely hold a mirror up to the nature of education as it exists. Reflected in that mirror will be both the strengths and weaknesses of that profession. Television has provided just such a reflection, and none of us can be completely happy with what we see.

In our unhappiness we can do three things: we can smash the mirror, we can get a new one with tinted glass, or we can work at improving the imperfections we see reflected there.

Books, people, and technology—three imperfect elements in the process of education. Each in its own way can complement the other; each can compensate for the imperfections of the other. Wisely combined, they may offer enriched opportunities for learning to all men, wherever they are.