



Technology vs. Man: What Will Be the Outcome?

WAYNE HUEBNER*

As educators acknowledge past and present uses of technology, they must also acknowledge that their action in using technology helps shape the very world that they and their students live in.

MYTH conventionally means a legendary story that tells about mysterious forces governing the world. One myth-maker of the sixties, Marshall McLuhan, nearly tells such a myth about technology when he identifies man as the sex organ of the machine. Other spokesmen, such as Oswald Spengler and Jacques Ellul, grant almost supernatural powers to technology when they warn that technology is quickly gaining control over and destroying the natural world of man. The problem with such myths is that they serve only as legends which do nothing to illuminate the options before the educator. Instead, these fear-enlisting legends leave him confused and seemingly without power to face events which he does not yet see in historical perspective.

Another understanding and use of myth concerns the unexamined beliefs which di-

rect people as they go about their work in the world. It should not be difficult for many educators to find themselves the carriers of and operators from such unacknowledged myths—among them the potential power of technology to do good or evil. Like the legends, these myths also entrap people by hiding from them a picture of their various alternatives.

If educators, for example, can discover their own limiting assumptions about technology and its use, then they need neither cringe nor jump for joy when technology confronts them. By recognizing that technology is something that has been thought of and used in various ways in the past, educators can conceive and invent—they can control—new uses of technology in the future. But such a process of recognition requires an accompanying reorientation: as educators acknowledge past and present uses of technology, they must also acknowledge that their action in using technology helps shape the very world that they and their students live in. This is perhaps an awesome

* Dwayne Huebner, Professor of Education, Teachers College, Columbia University, New York City

responsibility to accept, but part of its acceptance is the realization that world-shaping is not a mysterious, uncontrollable process; instead, it is a political process which requires imagination, power, tools, and a continuously maintained openness.

A technology is a collection of tools— instruments of and for men. By themselves, the tools have no power; they merely amplify the power of the individuals who use them. The danger in technology is the danger in how individuals use the power they have— power over others, power over themselves, power over their own consciousness and imagination. Technology becomes dangerous when it no longer works together with the imagination of the people who use it, but acts instead as a substitute for their imagination. Technology is dangerous when people use it to build a wall to hide personal fragility, the source of humble courage. Technology is dangerous when people use it to conceal their need to be open and responsive to each other.

Technology is safe, on the other hand, when people who care for the world and the people in it use the technology in caring, imaginative, open ways. It is safe when people use it to shape a world that reflects the imagination and that extends man's awareness of himself. It is safe when they use it as an instrument of love.

I want to focus specifically on some examples of educational technology which have left us afraid and powerless, and others that have not threatened us. At various times, many of us in education have found ourselves afraid of talking typewriters, computers, programmed texts, library cubicles with electronic jacks to information systems. Yet we are not afraid of other technologies: textbooks, bells ringing, clocks and daily schedules, pencils and paper and blackboards. We have feared management systems and instructional systems with advanced planning and feedback mechanisms. Yet we have not feared unit teaching, teacher-pupil planning, purposes, identifying learning activities, evaluating outcomes. Why do some of these tools—these instruments for our use—strike in us fear, while others leave us relatively

comfortable? The historical perspective is the answer: some of the tools are new and unknown; others have carried over from previous times and previous people who created them and made us familiar with them.

Technology is more than a concrete instrument, however: it is also a method. We speak of Socratic method or Rogerian method; we speak of unskilled or skilled teachers. These things are components of an educational technology, to be used by people who master them. And just as components such as books, clocks, and routine schedules give confidence, so components such as the recitation format, with its attendant textbooks and teaching methods, persist, keeping us from facing other possibilities for educational technology.

To Tame the Myths

Yet educators are held not just by the myth that their technology will overpower and destroy them; some are also possessed by the opposite myth—that a new technology will save the world from ignorance and injustice, and save education from the problems of its own institutionalization. Here, again, we need to tame the myths with a historical perspective. Those of us who are now pushing systems analysis, the computer or other electronic technologies, or performance-based methodologies may not be familiar with the efficiency movement of the twenties and thirties. Those of us who are excited by television may not remember the enthusiasm for film in the thirties.

Those of us concerned with the educational impact of technically-based industries are probably unaware of the power of educational publishing houses in the first half of this century. Those of us thrilled by the potential usefulness of newer behavior technologies, such as behavior mod, are probably unmindful of the initial enthusiasm for the psychological studies of reading, arithmetic, or group management. If we remember that technology is a tool—an instrument—then it is impossible for us to think of any period in educational history when our educational

hopes were not tied closely to an emerging technology, whether books, communication systems, organizational structure, skills of being with others, or engineering technologies emerging from new behavioral sciences. We must make a distinction between technology as tool and technology as panacea; and between technology as an instrument with equal potential for good and evil and technology as a new mechanism for salvation.

If, then, we set aside our naive beliefs that technologies will destroy man's humanity, or that educational technologies will dehumanize the schools; and if we set aside our beliefs that new educational technologies are our only hope for the future, what do we have left to direct our movement into our educational futures? We have, first of all, the awareness that we have never in our educational memory been without educational technologies. We have the awareness that the educational enterprises are part of a very complicated, social, economic, political system which is presently in a stage of upheaval as a result of new technologies increasing at a geometric rather than arithmetical rate. We have the awareness that today, as in the past, many segments of our population, including so-called experts, assume that perfection is around the corner if we will but buy their techniques and accept their panacea. We have the awareness that today, as in the past, large segments of our populations are being deprived because educational opportunities are not being distributed fairly and justly—opportunities for people to gain access to technologies to help them determine their own futures.

Lurking in the background of our awareness is the feeling that the problem of good or evil is not a problem of technology itself but a question of who controls technologies. To bring this awareness into the foreground is to recognize something which professional educators have traditionally not wanted to acknowledge—that we too are political beings. By purposeful action, or by default, we participate in the building of our world. We as educators are primarily concerned with building that aspect of the world which presumably educates our young.

Building a world means bringing into existence things and methods. The making of things and methods, if not completely a result of technology, is at least highly technical: witness the technical component in the various crafts and arts. By our concern for the education of the individual we tend to hide from our awareness our educating by means of the environment we create. Our primary task as educators, then, is to build an educative environment. This is what school buildings are about. This is what textbooks are about. This is what computers can be about. This is what our teaching skills are about.

Our unwarranted fear that technology will destroy something in our work with other people springs partly from our ignorance of how new technologies work. Afraid and unarmed, we lack the confidence and tools to imagine an educational future substantially different from the present—a future which more justly distributes educational opportunities. We also lack the strength to risk accepting our responsibility for making such a future, and so we participate, unconsciously, in maintaining a present unjust world which we ourselves dislike.

To Dispel Fear of Technology

To dispel our fear of new technologies themselves, we shall have to associate ourselves more closely with the technologists who are constructing new materials and methods, so that through our association we gain a knowledge of and confidence in how the tools work and how we might use them. By so doing, we will have moved away from rhetoric and toward a concern for the availability of various educational goods and services—the things we and students use to shape our emerging world. At the moment, this direction is difficult to take because our educational establishments are sadly deficient in developing new technologies, and so we find ourselves dependent on commercial profit-pursuing organizations for technical insights.

To fight our fear of our own power and responsibility for using it, we shall have to

acknowledge first our current political naïveté and weakness. Then we shall have to work to turn the school or other educational establishments into a place in which no single group dominates students by denying them the right and the tools to determine their own futures.

Our dependency upon technologies, whether tools or methods or ways of being with each other, obligates us as educators to master and to dominate our various technologies through continuous self-conscious reflection and political action. We must be aware of what we are doing. Building the world is a political task which requires technical tools. As long as our educational thinking is primarily technical thinking, then we

are like the people enslaved by the myth of their powerlessness in the face of ever-growing technology. We can be certain in this case that someone else holds the reigns to the power we are refusing to see, and that other people will therefore be using us and our educational establishments for their own political purposes.

But if we can change our educational thinking so that it acknowledges and develops political thinking, then we ourselves will grow to accept and enhance our own power. With an improved political consciousness, we can then choose which technologies we wish to use. We have a long way to go in this regard. I am not certain that we shall make it. □

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