Book Review

Toward a Philosophical Technology Education

Ferré, Frederick. (1988). *Philosophy of technology*. Englewood Cliffs, NJ: Prentice Hall, $17.33 (paperback), 147 pp. (ISBN 0-13-662586-X)

Reviewed by Carl Mitcham

Technology has increasing impacts on society and applications in education. Technology education, as a distinct area of study in K-12 schools, is slowly gaining a recognized place in the school curriculum that reflects the importance of these impacts. But what is the application of philosophy to technology? This brief textbook introduction to the philosophy of technology in the highly respected Prentice Hall "Foundations of Philosophy Series" — concerned, as it is, with what education in its deepest sense has to say about technology — provides an excellent starting place for addressing this question.

The text opens with an overview of philosophy as "the sustained effort at wondering critically about . . . comprehensive issues" (p. 2) applied to technology. What constitutes technological knowledge (as distinct from, say, scientific knowledge)? What is the relation between technology and human values. How are technologically constructed objects (artifacts) different from natural objects?

Such questions point readily to a need to define technology. Chapter two constitutes a stimulating consideration of a number of key questions related to the concept of technology. Must technology always be material? Is it always science-based? Can animals have technologies? Is technology natural or unnatural? Developing a definition that steers a middle course between the Scylla of excessive narrowness and the Charybdis of over generality, Ferré defines technology as "practical implementations of intelligence" (p. 26). Building on this definition chapter three goes into greater detail to examine technology as the practical implementation of practical intelligence (craft), while chapter four describes that peculiarly modern form of technology which is the practical implementation of theoretical intelligence (science).

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The first four chapters of the text thus deal with definitional and epistemological issues. The next four turn to questions of life and the problems of living with technology. Chapter five, considering general issues of "technology and modern existence," contrasts the "bright visions" of Karl Marx and Buckminster Fuller with the "somber visions" of Martin Heidegger and Herbert Marcuse. Chapter six focuses on the ethical assessment of technology, mentioning specifically the moral problems that arise in conjunction with workplace automation, computers, nuclear
energy, Third World development, and genetic engineering.

It is unfortunate that questions of education and technology are not directly broached in chapter six, but each of the five specific areas of ethical concern certainly has implications for both the utilization of educational technologies and instruction in and about technology in the schools. Classroom automation constitutes a kind of workplace automation that can be used to de-skill teachers. Computers can be the basis for invasions of privacy of and by both teachers and students. The risks of nuclear war and nuclear power generation come home in direct ways to the schools (remember the nuclear civil defense drills from the 1950s and some recent debates about siting schools near nuclear power plants). Technological development and education can raise issues of justice and equity for minority students as much as for Third World countries. Genetic engineering has implications for the kinds of students and teachers — and, indeed, for the kind of education — that will take place in the future.

The last two chapters consider debates about the mutual influences between technology and religion, and technology and metaphysics, respectively. The concluding discussions of technological models of human nature and free will versus technological determinism have direct bearing upon the theory and practice of education in the most general sense, and can provide the foundations for developing guidelines for assessing the appropriateness of technologies to different educational contexts.

Although the relation between education and technology is never directly addressed, this book provides reflective background for the informed development of a philosophy of technology education. This in turn can help us move from the technological transformation of education toward the educational transformation of technology. °