Technology Education in the Classroom: Understanding the Designed World

BOOK REVIEW

by Randall T. MacPherson and Patrick N. Foster

Raizen, S. A., Sellwood, P., Todd, R. D., Vickers, M. (1995). *Technology Education in the Classroom: Understanding the Designed World.* San Francisco: Jossey-Bass. $32.95, (hardcover), 249 pp. (ISBN 0-7879-01784)

The names of most major industrial arts professional organizations were changed by the end of the 1980s to reflect the newer term *technology education.* While these associations found a name they can agree upon, the profession has not reached consensus as to the philosophical structure or rationale for the field.

The authors of *Technology Education in the Classroom* view this as one of the profession's major hindrances. This book endeavors to reconcile differing conceptions of technology education and offers a single vision for the field. This is an ambitious undertaking, and the authors succeed in presenting a unique and comprehensive vision of technology education. Yet like many reformers before them, they have difficulties in addressing some systemic problems that continue to plague the field.

Their conception of technology education as "design and technology" (D&T) is deliberately and unapologetically favored in the book. This view of the field places significant emphasis on empowering students to create and realize their own designs. Usually, these designs are proposed solutions to problems posed by teachers or classmates.

For reasons which are partly historical, D&T is closely linked to science education. While D&T has been practiced overseas for years, it is generally considered to be a new idea in the United States. It is not surprising, then, to find major emphasis in this book on connecting science and technology education. Nor is the book's international perspective unexpected.

Overview of the Text

The book's authors come from a variety of professional and academic fields. Senta A. Raizen is the director of the Washington, DC-based National Center for Improving Science Education; Peter Sellwood is a well-known technology teacher and entrepreneur from the United Kingdom; Ronald D. Todd is the director of the Center for Excellence in Design and Technology Education at the College of New Jersey (formerly Trenton State College); and Margaret Vickers is the director of the Center for Learning, Technology, and Work, located in Washington, DC.

Their collective thoughts and perspectives present an exemplary model of technology education and a plan for its implementation. At the outset, they state several general objectives, such as exemplifying this model via authentic examples and promoting an international perspective of technology education. They then provide a rationale, structure, and implementation plan for what they call "a school subject still in the making" (p. 38).

The text begins with a rationale for the inclusion of technology education in the school curriculum based on global competitiveness. "One cannot ignore," they argue, "the fact that many of this country's economic competitors place a great deal of emphasis on technology education and see it as an important tool in reforming their own educational systems" (p. xvi). The authors divide common practices in the field into two categories: applied science and vocational (or prevocational) education. In the absence of a conceptual base, they maintain, the field is unable to create a recognized relationship with established school subjects, most notably science education.

The authors offer a "'best possible' scenario for technology education" (p. 38) and a plan for its implementation. Specifically, they offer "a statement of guiding principles... [and] explicit goals for technology education" (p. 38) as well as alternatives for structuring a technology curriculum. For example, they outline the development of combined course sequences that replace separate science and technology studies, advancing the notion of a "linked-studies" approach to science and technology education (p. 76). Later they discuss the merits of "parallel science and technology programs," which figure in the elimination of tracking (p. 91).

This blueprint characterizes technology education as a K-12 program with a variety of outcomes, including technical skills (design, construction, evaluation), interpersonal skills, and specific knowledge and understandings. Although several options exist for the implementation of technology edcuation, the authors are quite specific about common ele-

ments necessary to achieve these outcomes.

Finally, the topic of implementation is addressed. This includes preservice and inservice teacher preparation, scheduling, student access, and assessment issues. The focus is often on affecting school-district change.

The authors accomplish many of the objectives they set for themselves to accomplish in this volume. A detailed plan for technology education is indeed presented. Further, they provide abundant case studies and examples to support their position. And often their international perspective frequently underlies their discourse.

Unfortunately, while the authors seek to distance technology education from the mistakes of the past by regarding the field as a "new subject area...not yet widespread in the United States" (p. xv), they are unable to escape the slough of a field once known as *manual arts.*

First, their argument that technology education is necessary in part because it is prevalent in countries with which the United States competes economically portrays the field as an economic tool. This clashes with many of the student-centered vignettes presented elsewhere in the book. On the other hand, the authors advocate technology education for the betterment of the child; yet their rationale is reminiscent of manual arts-era social efficiency—the betterment of the country.

Second, while the authors contextualize conceptions of technology education advocated by diverse factions within technology education, it is fair to interpret the book as a policy statement from one camp—the National Center for Improving Science Education. The authors differentiate between science and technology as school studies, but leave some questions open about the relationship between these studies. For example, could technology be considered a branch of science education, such as chemistry or biology? Would technology educators, then, be science teachers? Ideally, of course, all school subjects would be integrated and these questions would be moot. But the technology education implementation plan proposed by the authors does not fully consider such seemingly important aspects.

Nonetheless, the authors should be applauded for putting on the table a vision for technology education that is international in scope; one which recognizes the need to be inclusive of all students, female and male; and one which begins in kindergarten, rather than being relegated solely or even primarily to the secondary level.

One would hope that the challenge for technology educators would be to determine what technology education has to offer children—not what technology education has to offer science education. This text goes a long way toward meeting this challenge and toward encouraging much-needed debate in the field.

Mr. MacPherson and Mr. Foster are Lecturers in the Department of Practical Arts and Vocational-Technical Education at the University of Missouri, Columbia. MacPherson is a member of the Beta Alpha Chapter of Epsilon Pi Tau. Foster is a member-at-large of Epsilon Pi Tau.