The puzzling title of the subject line on the e-mail read, “Is This Progress?” Attached was an electronic copy of a recent Kappan article titled “Industrial Arts/Technology: What Are We Doing?” (June 2007). For many years now, those of us within the technology education profession have argued that we need to stop talking to ourselves and start taking our message both to the broader community of educators and to the public at large. As recently as mid-June of 2007, the leadership of the International Technology Education Association (ITEA) had discussed the possibility of approaching the Kappan about publishing an article on the topic of technology education. So it was with both surprise and excitement that we found the article by James Howlett and Brad Huff attached to our e-mail.

After reading the article, the subject line of the e-mail made sense. Howlett and Huff made two excellent points. The first is the strong relationship between basic skills in math and reading and such technical skills as machining, drafting, and working with electricity or electronics. The second is the notion that the public school curriculum is fast being turned into a two-subject curriculum courtesy of No Child Left Behind. Beyond those key points, though, the article portrayed an overly vocational vision of technology education that left us — and the rest of the leadership of our profession — feeling that a grand opportunity to explain the valuable role that technology education can play as part of the general public school curriculum had been wasted.

Technology Education: A Contemporary Perspective

While the authors agree with much in the June 2007 article by James Howlett and Brad Huff, they want to emphasize that “industrial arts” has been largely replaced by “technology education,” a much broader curriculum aimed at all students in all grades.

BY LEN S. LITOWITZ AND SCOTT A. WARNER

To better understand our disappointment with what Howlett and Huff presented under the label of “industrial arts/technology,” it would be helpful to provide some historical and philosophical perspective on the differences between vocational education, industrial arts, and technology education.

To the layperson, the terms vocational education and technology education seem closely related, perhaps even synonymous. However, a closer examination of typical definitions shows that they are very different. For example, the legislature in Washington State provided the following definition of vocational education:
The term “vocational education” means a planned series of learning experiences, the specific objective of which is to prepare individuals for gainful employment as semi-skilled or skilled workers or technicians or sub-professionals in recognized occupations and in new and emerging occupations.

In contrast, the Standards for Technological Literacy defined technology education as “a study of technology, which provides an opportunity for students to learn about the processes and knowledge related to technology that are needed to solve problems and extend human capabilities.” This same document also advocated that all students in K-12 can become technologically literate and should be given the opportunity to do so. It provided an intellectual framework, spanning the K-12 system, for the study of the human-made world (i.e., technology) that included medical, agricultural, and related biotechnologies, as well as energy and power, information and communication, transportation, manufacturing, and construction technologies.

From these vantage points, it becomes clear that vocational education focuses on trade preparation, whereas technology education is broader in terms of content (the study of major technological sectors in the human-made world) and its intended audience (all students at all grade levels).

Arguably, the relationship between industrial arts and technology education is more complex. Industrial arts was the predecessor to technology education. The term industrial arts first appeared in the literature in 1904, when Charles Richards, editor of Manual Training Magazine, proposed it. His suggestion for the name was part of an editorial intended to redirect the educational focus of manual training. Richards believed that the new field should draw its content from the study of industry. It should not be surprising that this change of name would happen when it did. At the beginning of the 20th century, the U.S. was fully into its second Industrial Revolution. The eventual adoption by most American public school districts of industrial arts as a component of the general curriculum was a clear indication of the importance of the economic, social, and cultural influences of industry throughout most of the last century.

Yet even during the years of rapid expansion of industrial arts as a recognized and accepted subject area, there were leaders in the field who were beginning to promote the idea that the study of industry was still too narrow. As early as the late 1920s, leaders in the field were proposing that the broader study of technology would be a more appropriate educational undertaking. Nonetheless, the success of industrial arts would continue relatively unabated for quite some time.

It was not until the 1970s that the idea of studying technology would finally establish a position in the field and start to take root. A benchmark work from the early 1980s that established the conceptual foundation for the transition from traditional industrial arts to technology education was the Jackson’s Mill document. It represented the collective effort of dozens of leaders in the field of industrial arts to rethink the content and educational goals of the curriculum.

What grew from the seed of industrial arts and efforts such as the Jackson’s Mill document and the later Conceptual Framework for Technology Education was the contemporary technology education movement. This movement espouses the broad study of technology. In the opening years of the 21st century, the impact of technology — for good and for ill — as the main expression of human activity on the planet Earth is unquestionable. With this perspective in mind, our profession wants to include technology education as a vital component of the curriculum that every student in every grade of public education receives. Our ultimate goal is to aid in developing technologically literate citizens who can make informed choices about the technologies we use at both the personal and societal levels.

In moving toward this new mission, the curriculum of technology education does not give up on technical content; rather, it changes the focus from a narrow band of skills and knowledge for the industrial trades to a much broader perspective. To be sure, technology education courses still serve to expose students to such technical industries as manufacturing and construction, but only in a way akin to the way that English exposes students to careers in journalism or creative writing.

The difference is both subtle and dramatic. The subtle changes are often in the names of the courses that have been broadened to reflect contemporary industries and technologies. The more dramatic changes are in the nature of the courses themselves. For instance, a contemporary computer-aided drafting course might target not just those who would like to explore drafting and technical drawing as a career, but also those who aspire to be engineers, architects, designers, or members of any of a number of professions that recognize drafting and technical drawing as a fundamental language of the technical world.

Contemporary technology education assignments often take the form of design briefs and require students to make use of tools and machines to solve real-world problems through hands-on, minds-on learning. Contemporary technology education curricula foster creativity, ingenuity, innovation, and inventiveness, all hall-
marks of the American spirit. Contemporary technology education curricula offer sound support for the engineering community and other design professions, at a time when our nation “does not produce enough technically skilled workers to support certain sectors of its high-tech economy.”

Contemporary technology education curricula help the next generations become technologically literate by exploring all sides of key contemporary issues. For instance, do robots in industry really eliminate more jobs than they create? Are hybrid vehicles really better for the environment than gasoline-powered vehicles? Is the use of more nuclear power generation desirable or even inevitable?

Furthermore, contemporary technology education curricula serve to enhance the development of such core subjects as mathematics, science, and reading by adding variety, relevance, and purpose to a student’s academic program of study. We agree with Howlett and Huff that, to address standardized testing mandates, modifications to the curriculum in many districts have made expendable or curtailed the growth of subject areas not directly related to the testing mandate, such as technology education, art, music, and many others. These subjects add richness and meaning to the process of learning in the schools both because of their content and because of the varied instructional approaches that can often be used to deliver content in these areas. We would call this a prime example of killing the patient to cure the disease.

DRIVING INTO THE FUTURE

We agree with Howlett and Huff when they contend that our public school curriculum is being narrowed by legislation and the mandates for standardized testing. We also support their acknowledgment of a strong link between technical skills and skills in reading and math.

Unfortunately, we must part ways with Howlett and Huff on just about every other aspect of their message to the readership of the Kappan. The curriculum of industrial arts served its purpose when the United States was focused on an industry-based economy. Those days are past, and now we must look ahead to a different type of future, one that is still filled with the technological artifacts of human ingenuity and creativity, but one that has in large part moved beyond the industries of the last century.

The profession of industrial arts saw that future and decided to move forward. When the profession made the move toward the study of technology as the curricular focus, the identifying label of “industrial arts” was relegated to its rightful place in the history books of education. Technology education came into being as an identified subject of study in the 1980s. Nationwide, technology education curricula have been replacing industrial arts curricula for over 20 years. As further evidence of the scope of that change, no national or state organization and almost no undergraduate teacher preparation program in the nation still uses the term industrial arts in its name.

Thomas Wright was a national leader in industrial arts during the years of transition to technology education. He would frequently tell his graduate students that it was important that the profession not “drive into its future while staring into the rearview mirror.” That image summarizes our feeling toward those who are still advocating an industrial arts curriculum model that is dated and obsolete. As members of the current leadership of the International Technology Education Association, we felt that it was a matter of critical importance for Kappan readers to be aware that contemporary technology education curricula are different from the outdated industrial arts model and represent a valuable asset in any forward-looking general education curriculum. Technology education provides all students with opportunities and experiences to develop technological literacy. It is for this reason that technology education should be a part of every student’s intellectual diet as he or she moves through school.

Finally, as educators, parents, citizens, and members of the human race, it is important for all of us to remember that our technological world will only become more so with the passage of time. Providing all students with the tool of technological literacy is perhaps the best gift that we can give to prepare the next generations for what lies ahead.
