

From the Editor

Affect, Terminology, and a Bit of Tongue-in-Cheek

When our grandchildren Jacob and Danielle, now aged six and ten respectively, come to visit we often end up working with tools and materials to solve “technological problems” that they have thought up. Sometimes we work at home in my shop in the basement and sometimes we work in the lab at the university. These occasions are always pleasant and inevitably they cause me to reflect on the fact that the same reasons that attracted me to this field some 40 years ago are every bit as strong in my heart today.

What impresses me most in these intimate sessions with my grandchildren is the excitement that they show during the process of solving a technological problem, and especially when they have made a successful solution. I cannot think of another teaching area in which this phenomenon occurs, at least not with parallel intensity.

Around the world, there is increasing pressure these days to demonstrate that what children learn is important and that they are, in fact, learning. This is certainly true in technology education where the dearth of supportive research has put the field at a disadvantage. Explanations for this shortcoming have appeared over the years in this Journal, not the least of which is the fact that few resources have been available. In the US, for example, considerable money has been available to develop instructional programs and to prepare teachers in their use, but the support to actually conduct research has been quite minimal. Things are apparently about to change with a new direction being taken by the National Science Foundation.

Whether the efforts are funded or not, qualitative methodologies continue to grow rapidly within the educational research community. The reports of research in the JTE are no exception to this growth, with most of them coming from authors outside of the US. Reading these reports that describe the thinking and reasoning that students go through in solving technological problems can be very informative and thought provoking. They epitomize the type of reflective thinking in which all teachers need to be engaged. It seems that such research is at the brink of addressing how students *feel* about the technological problem solving process, why they are so intensely excited about it, and how it changes their feelings of self confidence and self worth. In other words, technology education may provide the ideal environment in which to address the *affective* domain of knowledge through the application of qualitative research methodology, breaking the long tradition of nearly exclusive emphasis on the cognitive domain. With the emphasis on *doing* that continues in most of our

programs, research in the psychomotor domain continues to be a natural fit as well. In short, technology education seems to be an ideal and unique test bed for qualitative research that integrates all three domains of knowledge, as well as thereby being an exemplar of ideal teaching practice for other disciplines.

Trying to synthesize the qualitative research that has been done in technology education and derive principles from it are difficult and formidable challenges. Applying the principles thus derived to educational practice in a meaningful way is likewise daunting. Part of the problem in making sense of qualitative research is related to terminology. The novice has a difficult time entering the arena due to the elusive and inconsistent nature of the terminology used. The terms are often not found in ordinary dictionaries. What's more, if one happens to leave the qualitative research community for even a relatively short period of time, a whole new vocabulary seems to appear upon reentry. As with any field that has not yet reached maturity, the terminology of qualitative research continues to evolve.

The ever-changing terminology of qualitative research caused me to reflect on the terminology of technology education and some its anachronisms and unclearness. In fact the issue is not a new one, for a committee headed by William E. Warner took on the charge of trying to make sense of it all back in 1929 (see Barlow, 1967, pp. 267-268).

The term "technology education" itself is an interesting starting point in reflecting about terminology. Both "technology" and "education" are nouns, making the term impossible to translate into quite a number of languages, including Spanish and Finnish - languages with which I happen to have some personal experience. "Technological education" is grammatically correct and is used by some of the international authors who have published in the JTE.

In the secondary schools, students do not refer to the classes they are taking as "science education" and "mathematics education." Instead they simply refer to them as "science class" and "mathematics class." It seems that simply using the term "technology" and "technology class" would be appropriate, though there are some obvious problems in consistency when it comes to "physical education." Nonetheless, it seems that just "technology" is appropriate for the secondary schools whereas "technology education" would seem appropriate in reference to programs that prepare technology education teachers. Some have used or suggested the term "technological studies." Though this term may make sense outside the schools, inside it does not - school students assumedly "study" all the subjects in which they are enrolled.

In the US, the use of the term "laboratory" or "lab" has been favored over the term "shop" for decades to describe the physical facility in which technology education (i.e., technological education) instruction occurs (again, see Barlow, 1967, p. 268). I will continue to insist that my students use the term "lab," as I have done for most of my career. One of the arguments to support this is that a laboratory is where new ideas are developed, whereas a shop may be thought of a production facility where the work is often repetitive and boring. As with all terms, each person constructs their own personal definitions, with their own

connotations, based on their life experiences. For me, “lab” does not conjure up particularly exciting memories, since I can connect it with bad experiences I had doing chemistry experiments in a school lab. Likewise, my wife worked for over a decade in a quality control lab in an industry. She performed the same chemical analysis tests over and over, day after day. Though being a “shop teacher” is a disdainful term for many in the profession today, there was a time when teachers were rightfully proud of being identified as such. Developers of popular software programs such as Photoshop (Adobe Systems Inc.), Print Shop (Broderbund, LLC), and Paint Shop (Jasc Software Inc.) apparently see marketing potential in the use of the term and all three products are promoted as “creativity tools.”

There is redundancy in some of the terms we have used as well. In an earlier attempt to upgrade the field, material-identified courses such as woodworking and metalworking were renamed “woodworking technology” and “metalworking technology.” If one accepts a definition of technology in terms of human action, then technology is redundant with the “working” part of these terms. Some might even argue that the term “design and technology,” parallel to technology education in England and other countries, is also redundant. How can one engage in technology without design, or vice-versa? Likewise, some are using the term “Design and Engineering” – the redundancy is self-evident.

Then there are “sound bite” terms that are intended to attract one’s attention, but may not communicate anything to the recipient about what the terms mean. “Synergistic Systems” is the name of a popular instructional system in technology education in the US. However, it does nothing to describe the program itself or even to place it in the context of education. “Project Lead the Way” is another example. Such terms can attract attention and raise curiosity, but they are successful in meeting their ultimate intent only if the means are immediately available for the receiver to make sense of them.

Some of sound bite terms were date stamped, like the name of the large computer manufacturer, Gateway 2000, which changed its name simply to Gateway when the year 2000 arrived. A parallel in technology education was a program titled “Lab 2000.” Some terms, though fixed in time, go on into perpetuity. For example, many people still “listen for the dial tone” and “dial the number.” They also refer to computer diskettes as “floppy,” even though the last ones that actually flopped were the 5_¼” diameter variety that became obsolete about a decade ago. “Silk screening” is still used on occasion instead of “screen printing,” even though silk has not been used in the process for decades. The piping medium that carries water away from the foundation of a building is called “drain tile” even though for years it has been made of plastic rather than fired clay.

Back to my grandchildren... Jacob was the one who provided the idea for this essay. While we were watching television in our family room a few months ago, he said, “Grandpa, do you think we could go down in the basement and build something in your *lab*?” Hmmm...

JEL

Reference

Barlow, M. L. (1967). *History of industrial education in the United States*.
Peoria, IL: Bennett.