

Guest Editarticle

Social and Professional Responsibility in Our Professions...or...*Pragmateia* in the Grand Scheme of Things

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I've been a member of this honorary for over a quarter of a century, and I've often reflected as a trustee on the words of the three counselors while listening to the ritual, or while hearing a charge to the new members, or some words from members of the executive committee. Last year at the Mississippi Valley Technology Teacher Education conference I was honored to share a platform with a number of individuals who were addressing their involvement in some of the major initiatives in our field over the years. Ken Phillips, who was an original member of *A Curriculum to Reflect Technology* (Warner et al., 1947) team, spoke eloquently and respectfully of the contributions of W. E. Warner to that effort and many other initiatives in what we now may call Technology Studies. It struck me that, as you might expect, Warner's social reconstructionist philosophy found its way into the Epsilon Pi Tau ritual as *Pragmeteia*—social and professional proficiency—to think of professional and social needs first in order to live in peace and to assume an effective place in our society. In the grand scheme of things we might ask, How can we reconstruct our school and our profession in order to create a better society? The question is riddled with pitfalls, among them those value-laden issues related to what is a better society. Perhaps a bit more focus on the direction that Technology Studies is heading and the role of the profession in getting us there will be more manageable.

The Life Cycle of Technology Studies

If we look at a life cycle pattern containing seven stages—precursor, invention, development, maturity, pretenders, obsolescence, and antiquity (Rogers, 1995), we can clearly see the position of the old industrial arts as in the last gasp position of antiquity. But where do we see the new technology education positioned? Is it at the development stage where the program is protected and supported by dotting guardians? Or has it advanced to the maturity stage where it now has a life of its own and has its place in the fabric of the internal and external community? Although I hesitate to speak the term aloud, could it be in

the pretender stage, lacking some key element of functionality or quality? Where would you place our profession? For the sake of this article, I will assume that we have evolved only to the development stage and that there is still time and room for additional creation that could lead to even greater significance for the study of technology.

Our Social Challenge

Is there content in our field of study that would help all learners understand and work for peace in the world? Certainly the Technology Content Standards in the *Standards for Technology Literacy* (STL; ITEA, 2000) support that idea in providing a complete strand titled “Technology and Society” where four standards are devoted to that topic. It's interesting to note in retrospect that this project is a product of the Technology for All Americans Project. Isn't that part of our social problem today? While there are references to global issues in the documents, the overall project is a product of isolationism! On the flip side, it's the best document ever produced for our profession. Our challenge appears to be that we must become more global in our instruction and much more sensitive to the cultural and societal impacts of our technologies.

Input, Output, and Grouping

We have all been “content sensitized” to the point where when the STL came out we all jumped to chapter 7 to see if our favorite content area was represented. I'll not go there today. Rather, I'd like to talk about those inputs and outputs that should be fundamental to literacy in all learners. If that literacy is not addressed, the learning that occurs on the inside of our learning organization will not be equal to the learning that occurs on the outside of those organizations. That, according to Revans (1980), a pioneer in organizational learning, will result in the decline and decimation of the organization. The inputs have been aptly classified by the North Central Regional Educational Laboratory (NCREL, 2001) as digital-age literacy, inventive thinking,

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effective communication, and high productivity. The output of digital-age literacy is a compilation of “today’s basics,” basic, scientific, and technological literacy. Basic literacy, as has always been the case, incorporates the essential components of language literacy: reading, writing, listening, and speaking, but in today’s context also includes the use of technology-based media. For example, do you listen to or read a book and do you read text off of an LCD screen, a page, or, in the near future, directly. Scientific literacy today relates more than ever to the synergy among science, mathematics, and technology. It must include a fundamental understanding of the bodies of knowledge of each of these disciplines as well as practice in the scientific method. Technological literacy, according to STL, is the ability to use, manage, assess, and understand technology. This level of literacy must include literacy in culture and global awareness. Cultural literacy assumes the ability to recognize and appreciate the diversity of peoples and cultures. Global awareness allows learners to understand and recognize the interrelationships among nation states, multinational corporations, and the people of the world. Digital-age literacy must, therefore, be contextualized globally and culturally. To do otherwise is to continue to perpetuate isolationism.

The outputs of inventive thinking are manifested in information problem solving and are operationalized by a person’s ability to take into account contingencies, anticipate changes, and understand interdependencies within and among systems. They presume a person’s commitment to lifelong learning by stimulating curiosity, creativity, and risk taking. Curiosity is a “desire to know.” Creativity involves using one’s imagination to develop new and original things, and risk taking involves taking a chance to lose something of worth for the opportunity to gain greater things. Other outputs of inventive thinking are higher-order thinking and sound reasoning. These outputs ought to be precursors to problem solving but often are dismissed as nonessential processes of the creative enterprise. In fact, higher-order thinking leads to informed, thoughtful opinions, judgments, and conclusions, where problem solving in isolation often leads to only one acceptable solution. The capacity to think logically in order to find results that meet appropriate

criteria is a process of sound thinking and sound reasoning.

Another 21st century skill input is effective communication. This skill is sorely absent from the products of our high schools and university programs. Often our students have excellent technical capability, but they lack the social and personal skills necessary to be effective at many levels of enterprise. The outputs of this skill are teaming, collaboration, and the development of interpersonal capabilities. These outputs reflect the ability to work effectively as a member of a group of individuals who are dedicated to a common goal, to interact efficiently among the team, and to work in concert to achieve that goal.

The final skill output that NCREL addresses is high productivity. In some ways this is the 2000 version of TEXNIKH—skill in systems and processes related to information, organizations, and materials. These skills are soft and hard; a concept that we sometimes forget. Soft skills include the ability to carefully plan and manage work, concentrating on the main goal of the project while anticipating contingencies, to arrive at satisfactory results. Hard skills refer to the application of tools, materials, and machines to real world situations in ways that add value. Experience with high productivity skills provide students with insights across the domains of knowledge.

Mastery of 21st century skills requires the use of effective learning strategies, many of which have been alluded to already in this article. Specifically, social proficiency, or Pragmateia, must be reflected in the classroom through learning groups. Damian (2001) of ENC Instructional Resources has identified three learning group strategies that have implications for our field. Problem-solving partnerships allow students to apply their knowledge of mathematics, science, and technology principles to problems that could be encountered in life or work situations. Multiple approaches to solving the problem are encouraged, and individual students have the opportunity to explain and discuss their suggested solution. In cooperative teams a team plan of operation is created and goals are specified for highly structured teams. Team members share leadership roles within the framework of specific roles, while stressing cooperation in the achievement of goals. Collaborative groups allow for a high level of flexibility and creativity while allowing peer

support and the opportunity to have extended amounts of time to think and work together. Garmston and Wellman (2000) identified seven norms of collaborative work: pausing, paraphrasing, probing, putting ideas on the table, paying attention to self and others, presuming positive intentions, and pursuing a balance between advocacy and inquiry. This type of behavior provides the “habits of learning” that could lead to a better understanding of culture and societies.

Collaborative work should also be a part of every teacher’s portfolio. The National Science Education Standards (National Research Council, 1996) and the Principles and Standards for School Mathematics (National Council of Teachers of Mathematics, 2000) emphasize the need to establish collaborative learning groups for teachers as well as students. According to these standards documents, strong collegial support where teachers are working together to improve their own teaching skills and content knowledge results in systemic improvement and brings about a feeling of belonging and deeper meaning to the learning process.

“Leaning” Up the Profession

If our profession becomes committed to devoting more resources to Pragmateia-based initiatives, what will have to occur? We can look to the manufacturing enterprise for that answer in the “lean” movement. Lean organizations

- Accelerate improvements in speed and quality.
- Eliminate the “end of the month” crunch.
- Gain control and eliminate chaos.
- Earn performance recognition and rewards.
- Eliminate stressful work routines.
- Move from “fire fighting” to proactive problem solving.
- Contribute to improving the institution’s bottom line.

Don’t you sometimes feel like you’re riding an old broken-down workhorse when other professionals are riding thoroughbreds? Perhaps it’s because we operate in a manner that supports that kind of perception inside and outside of the profession. With all due respect to our associations and leadership, if we were to reflect upon becoming lean as a profession we might consider the following:

- Sharing the “technology” role. There is at least one state that is creating standards based on the following national standards:
 - National Educational Technology Plan
 - National Education Technology Standards for Students
 - Standards for Technology Literacy
 - Information Literacy Standards for Student Learning

The thinking is that there is plenty of content to go around. What is important is that students meet the outcomes.

- Changing the name of the profession. We’ve done this before, but we may have missed the mark. I’m aware of confusion on virtually every standards committee, whether at the local, state, or national level where there is misinterpretation between technology education, educational technology, computer technology, and information technology. If we aren’t going to embrace the approach identified by the first bullet, we should consider changing the name to something more descriptive such as Technology Studies. It works for Social Studies!
- Unify the profession. This is, of course, heresy in the cathedral. However, the more associations that we have representing us, the more diluted our message becomes, and the less strength our representative bodies have, sometimes all the way down to the local level.
- Make a commitment to standards. Regardless of the standards selected, the process used to create these documents is accountable and defensible. As we become more committed at a national level to the linkage of funding to assessment, it will be necessary to link our outcomes to valid documents.

If we were required to take an oath upon becoming teachers, would it include “advancing understanding, appreciation, and awareness of technology as both an enduring and influential endeavor and an integral element of culture?” I would hope so. We all believe in this statement because it is the last statement in the Code of Epsilon Pi Tau. Through this is our opportunity to go far.

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