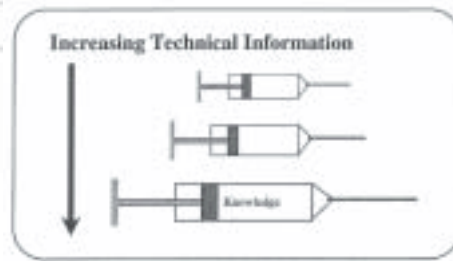


## Mapping Dimensions of Technological Literacy to the Content Standards

Larry Hatch

The *Standards for Technological Literacy: Content for the Study of Technology* (ITEA, 2000) provides the profession with a blueprint to address an important public need. The public, however, is often not inclined to read a 200+ page volume or even an executive summary. When the United Kingdom's (UK) National Curriculum for Design and Technology was introduced, Gordon (1992) developed and used a graphic or content map illustrating the major elements of the plan in a single diagram. For visual learners a content map can concisely link content components in an organized fashion. With a tightening school curriculum, communicating clearly and concisely is vital.

The content standards must not be viewed as ever-larger doses of knowledge to be injected into children as displayed in this figure. Mere inoculations of more information about technology cannot hope to provide the transferable skills for tomorrow's citizens. Rather the purpose (i.e., technological literacy) and the content standards must be clearly linked in a manner that communicates with the audience. The relevance, realism, and richness of the standards can be illustrated through a content map. The content



**Figure 1. Injection curriculum theory.**

standards are more than just big needles of information; they reflect the important and realistic goal of achieving the civic, practical, and cultural dimensions of technological literacy.

These dimensions are never directly referred to in the content standards document but nonetheless underpin the rationale. Aspects of the dimensions are even imbedded in the content standard's definition of technological literacy, which is described as "the ability to use, manage, understand, and access technology" (ITEA, 2000, p. 242).

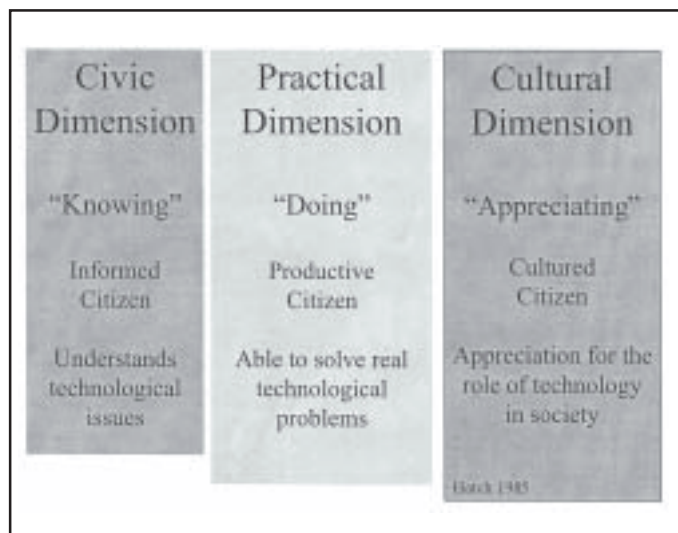
A definition of technological literacy that does include these dimensions appears in the Council on Technology Teacher Education 40th Yearbook (Dyrenfurth, Hatch, Jones, & Kozak, 1991):

Technological literacy is a multi-dimensional term that necessarily includes the ability to use technology (**practical dimension**), the ability to understand the issues raised by our use of technology (**civic dimension**), and the appreciation for the significance of technology (**cultural dimension**). (p. 7)

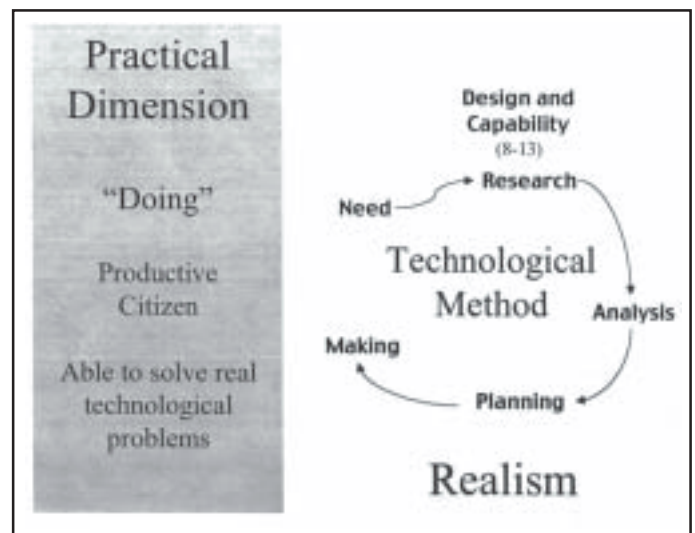
The civic, practical, and cultural dimensions describe the citizen who is informed, productive, and cultured. Graphically these dimensions can be used to map out the relationship to the content standards.

The practical dimension is central to technology education and represents the heritage of this curriculum area. This dimension resides graphically in the core of the content map.

The practical dimension in the diagram reflects the content standards 8–13. The term *technological method* coined by Savage and Sterry (1990) is used as an appropriate label for this dimension. The technological method is the mechanism used to engage students in working with real problems; this is the focal point, the very heart of the unique contribution technology education offers. The term *capability* is used here to replace the multiple use of the term *ability* within the benchmarks.



**Figure 2. Dimensions of technological literacy.**



**Figure 3. Practical dimension.**



Figure 4. Civic dimension.

Content standards 1–3 and 14–20 reflect the civic dimension of technological literacy. An understanding of the **Nature of Technology** and the **Context of the Designed World** are the building blocks needed for an informed citizen. This dimension brings relevance to the curriculum and provides a starting point to engage students in the technological method (practical). This list of what use to be course titles now becomes a reservoir for contextual real world problems.

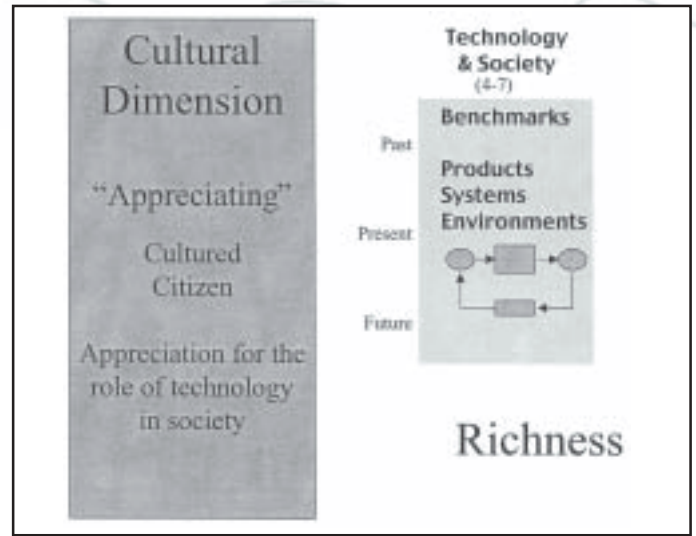


Figure 5. Cultural dimension.

Therefore, the knowing and doing elements are interactive to make learning both relevant and real. The technological method provides transferable skills that equip students to better understand the technological issues and challenges in additional contexts. What is missing in this graphic is the cultural dimension of technological literacy.

The cultural dimension challenges the learner to step back and examine the artifacts of the created world in light of

their impact on society. Most technological advances take the form of a product, system, or environment. In fact, almost every student project can be classified along these lines. Analysis of products, systems, and environments over time can provide a sense of a person’s technological heritage and the role technology will play in his or her life. This brings richness to the technology education curriculum.

This content map can be used to explain both the *what* and the *why* of

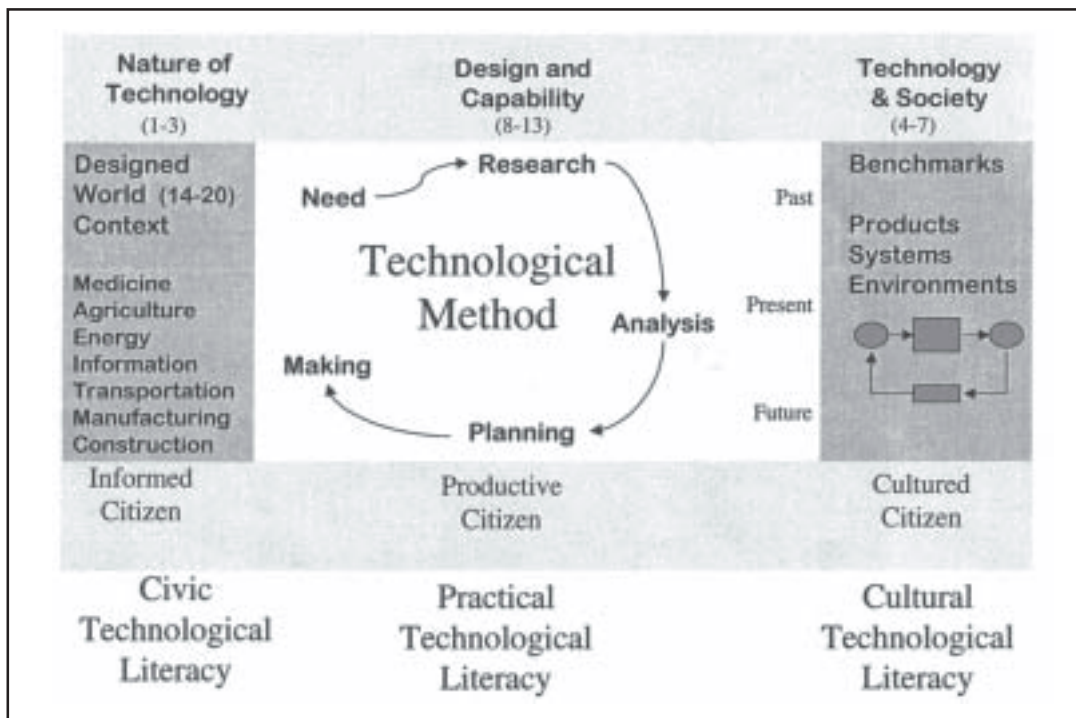


Figure 5. Content map for technological literacy.

the content standards. The map can tell us where we are going and how we are getting there. It links the content standards to the outcomes of technological literacy. It has been adapted here to reflect the content

standards and dimensions of technological literacy. It is important to consider this or other content maps that provide the public with a concise graphic of both the rational and content standards for technological literacy.

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