TPACK: A Framework for the CITE Journal

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In 1986 Lee Shulman proposed that crucial aspects of pedagogical practice are uniquely connected to specific content areas and coined the term "pedagogical content knowledge." Extension of the concept to "technological pedagogical content knowledge" (now referred to as technology, pedagogy, and content knowledge, or TPACK) in recent years recognizes the central role of content and pedagogy in uses of educational technology – a role previously missing in many discussions. Even though some technologies may indeed facilitate student learning, content and pedagogy are crucial ingredients in this success. If the pedagogical content knowledge required for each discipline differs, it follows that the ways in which technology might best be used for each discipline may also differ.

During the same era in which this concept was being articulated (see Mishra & Koehler, 2005, for an overview of the history), several teacher educator content associations and educational technology associations formed a collaborative organization. The participating representatives possessed a common belief that technology should be introduced in the context of content instruction and that teachers should take advantage of the unique features of technology to teach content in ways they otherwise could not. This consortium, which subsequently evolved into the National Technology Leadership Coalition (NTLC), was grounded in the ideas that were later incorporated in the TPACK framework.

Establishment of this journal, *Contemporary Issues in Technology and Teacher Education* (CITE Journal), was one of the first and most significant actions of the coalition. Now approaching its tenth anniversary, this scholarly collaboration among associations has primarily involved dialog about the intersection of technology, pedagogy, and content.

Because each partner association assumes editorial responsibility for the section of the journal related to its discipline (see About CITE Journal), CITE Journal provides a venue in which teacher educators can locate information relevant to integration of technology in their own subject areas and also identify corresponding perspectives in other content specializations.

CITE Journal editors also provide an important channel of communication between pedagogical content associations and educational technology associations. Because they participate in both the annual meeting of a teacher educator content association in the fall or winter and the annual meeting of the Society for Information Technology and Teacher Education (SITE) in the spring, they are conversant with perspectives in both domains.

These ongoing interactions provide opportunities to advance TPACK across disciplines and associations.

This special issue on TPACK commemorates a decade of effort that has come full circle. We encourage readers to begin in the General section of this edition, with Koehler and Mishra's article clarifying again, "What Is Technological Pedagogical Content Knowledge?" The importance of the TPACK framework has been widely recognized by educators, but as often happens, its popularity and broad application have diluted its original meaning. This article returns us to the core concepts of TPACK, as originally conceived by Koehler and Mishra and a number of insightful teacher educators who preceded them.

The General section also provides a description of Archambault and Crippen's efforts to measure self-reported teacher knowledge in the domains of technology, content, pedagogy, and all the various combinations of these domains. They grounded their work in the recognition that they were undertaking a difficult task—educators have yet to develop an instrument accurately measuring pedagogical content knowledge (some even doubt that such a construct exists). Yet, if TPACK is an important prerequisite to effective integration of technology in education, a method for measuring it seems essential.

In this issue, you will also find papers addressing TPACK in the content areas of mathematics, science, and social studies. Authors from the Association of Mathematics Teacher Educators (Niess et al.) describe their ongoing efforts to develop Mathematics Teacher TPACK Standards and provide an accompanying Mathematics Teacher Development Model describing the development of TPACK toward meeting these standards. Their efforts represent the focused efforts of a professional organization seeking to make the TPACK framework more concretely applicable to the work of teacher preparation.

Guzey and Roehrig describe the development of TPACK in four in-service secondary science teachers who participated in a professional development program about technology integration to support science-as-inquiry teaching. Brush and Saye describe strategies they have employed to promote TPACK with social studies preservice teachers. Reading across the mathematics, science, and social studies education articles illustrates again the differences inherent in technology integration across content areas and the importance of knowing which technologies can best enhance learning of which specific content.

The papers in this issue serve as a cross-section of the progress being made toward advancing the field's understanding of TPACK. In 10 more years the field's understandings of TPACK may look very different, but we look forward to maintaining CITE Journal as the venue for scholarly dialog in which those understandings may evolve.

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References

Koehler, M. J., & Mishra, P. (2005). What happens when teachers design educational technology? The development of Technological Pedagogical Content Knowledge. *Journal of Educational Computing Research, 32*(2), 131-152.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14.