

Chapter 44

Online TPACK Learning Trajectory Tools and Processes

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ABSTRACT

A multiple case, descriptive study provides research insights for illuminating the tools and processes in the online TPACK learning trajectory situated in a social metacognitive constructivist instructional framework for graduate coursework. In this course, inservice K-12 teachers' relearn, rethink, and redefine teaching and learning for developing a 21st century literacy significantly influenced by the proliferation and societal acceptance of multiple digital technologies. The research examination identifies insights about the incorporation of the key tools (community of learners and reflection) and processes (shared/individual knowledge development and inquiry) in the online learning trajectory for reframing teachers' Technological Pedagogical Content Knowledge (TPACK). Three themes reveal how the online learning trajectory relies on these tools and processes for enhancing the participants' learning: the tools and processes are needed for constructing knowledge, for transitioning the participant's thinking as a student to that of a teacher, and for recognizing the value of pedagogical strategies for teaching and learning with technologies.

Learning is not a spectator sport.

– Anonymous

INTRODUCTION

Concurrent with the scholarly research and publication surrounding the development and recognition of a new teacher knowledge construct, Technological Pedagogical Content Knowledge (TPACK), many educational organizations recognized that with societal and technological changes, the meaning of literacy has shifted in describing a 21st century literacy. Since technology has increased the intensity and com-

DOI: 10.4018/978-1-5225-5631-2.ch044

plexity in today's society, now literate persons must possess a wide range of abilities and competencies, often referred to as multiple literacies more than traditional reading, writing, and arithmetic; additionally they must attain digital, visual, media, and information literacies among many other literacies to be successful in the current society (Jones-Kavalier & Flannigan, 2008). They must be active participants in this learning, since developing a 21st century literacy is definitely not a spectator sport.

The International Society for Technology in Education (ISTE) has consistently demonstrated leadership with calls for developing literacy that students need in the digital age. Their six student standards in 2007 provided guidance in describing the nature of a 21st century literacy as skills, knowledge and approaches that students need to succeed in a digital age (ISTE, 2007).

1. Creativity and innovation
2. Communication and collaboration
3. Research and information fluency
4. Critical thinking, problem solving, and decision making
5. Digital citizenship
6. Technology operations

ISTE's standards challenge educators to teach differently than they traditionally have in order to adequately develop the multiple literacies of the 21st century. Their standards also call for teachers to redesign the curriculum and instruction in significant ways – ways that engage students in more problem-based learning, where they develop critical thinking skills around all types of media, where they communicate and work in collaborative teams, sharing their knowledge and understandings in the process of solving authentic problems, and specifically where they learn by taking advantage of the affordances of multimedia digital technologies (hereafter referred to as technologies). In essence, these standards challenge educators to prepare students with multiple literacies, a collection described as 21st century literacy.

Educating for this 21st century literacy requires significant changes in how and what teachers should teach. Thus, ISTE (2008) followed the student standards with guidelines for teacher knowledge, skills and abilities in designing the education for 21st century literacy. Their five teacher standards charge teachers to (ISTE, 2008):

1. Facilitate and inspire student learning and creativity
2. Design and develop digital age learning experiences and assessments
3. Model digital age work and learning
4. Promote and model digital citizenship and responsibility
5. Engage in professional growth and leadership

With the convergence of multiple calls for changes in education for the digital age and recognition that teachers need a reformed knowledge for teaching, teacher educators are faced with redesigning professional development experiences for reframing teachers' TPACK for teaching with the knowledge, skills and understandings of education in the 21st century. To develop this reformed instructional knowledge, teachers need experiences and opportunities to revising their traditional conceptions of teaching and learning in their content areas and grade levels; in other words, they need to relearn, rethink and redefine teaching and learning to focus on guiding students in developing 21st century literacy. Again this new learning is not a spectator sport.

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