

Chapter 9

Intersections of Micro– Level Contextual Factors and Technological Pedagogical Knowledge

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ABSTRACT

Context is an essential component of educator knowledge development and practice. When K-12 learning environments shifted from traditional schools and classrooms to remote learning, teacher knowledge of context was challenged as students were situated in varied and unpredictable settings. In this chapter, researchers examine the ways in which purposeful attention to technological pedagogical knowledge in teacher development and practice can influence the impact of fluctuations in micro level teaching contexts in remote learning environments. To provide direction in enhancing knowledge across contexts, the authors focus on the cross curricular learning skills of critical thinking, communication, collaboration, and creativity. Particular attention is given to learning activities that can span across contexts, grade levels, and subject areas.

INTRODUCTION

It is necessary for educators to have deep knowledge about both the practice of teaching and the application of educational technologies in order to engage in pedagogical strategies that support effective instruction (Koehler & Mishra, 2009). Contextual knowledge is a critical component to education as the influence a teacher has on students depends on the teacher's knowledge and understanding of the

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specific context (Kelly, 2007; Mishra, 2019). Amidst the many challenges of the COVID-19 global pandemic, educators were confronted with a rapid shift of teaching modalities and environments; this change modified traditional conceptualizations of context including the immediate environment in which students were physically situated (Ferdig et al., 2020). Micro level physical factors (Porrás-Hernández & Salinas-Amescua, 2013) such as the design of the classroom and the availability of resources were disrupted as classrooms relocated to homes, libraries, and parking lots. Additional micro level factors that were impacted include the mutual expectations established between teachers and students as classroom norms, which supported the learning environment.

Rosenberg and Koehler (2015) posit that context is inseparable from teachers and that the development of teacher technological pedagogical knowledge must therefore be developed through a teacher's knowledge of context and within context. When that context is significantly changed - as experienced during the pandemic - questions emerge on the knowledge and actions of teachers. That is, when context is woven together with teacher knowledge as the site of that knowledge (Rosenberg & Koehler, 2015), what happens when that context is disrupted? This chapter addresses the issue through exploration of how the purposeful enhancement of technological pedagogical knowledge development can strengthen the interplay between technology, pedagogy, and context. This exploration focuses on why specific micro level contextual factors support learning and how educators can establish those factors in fluctuating remote learning environments.

BACKGROUND

The Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) is central in educational technology research as a way to characterize the essential knowledge for effective instruction (Chai et al., 2013). The expansion (Figure 1) on Shulman's (1986) pedagogical content knowledge (PCK) framework to include technology introduced four new knowledge domains: technological knowledge (TK), technological pedagogical knowledge (TPK), technological content knowledge (TCK), and technological pedagogical content knowledge (TPACK) (Mishra & Koehler, 2006). The influence of TPACK on scholarship and practice is notable; as of 2020 there have been over 1900 publications focused on or supported by the TPACK framework (Harris & Wildman, 2019). As follows, it is understandable that teacher preparation and professional development continues to be informed by the framework when engaging in learning and knowledge sharing.

Technological Pedagogical Knowledge

This chapter prioritizes the technological pedagogical knowledge (TPK) domain to emphasize the importance of innovations afforded by educational technology to support student learning in remote environments. In the absence of specified content, TPK focuses on the understanding of how to leverage digital tools for appropriate pedagogical practices to support learning outcomes (Mishra & Koehler, 2007). For clarity, Mishra and Koehler (2007) suggested the visualization of a whiteboard; in the physical classroom the location of a whiteboard is often in the front of the room determining the position of the teacher and thus the interactions between the teacher and students. Furthermore, this position often dictates the teacher's pedagogical decisions leaning toward more teacher directed learning tasks. However, when an educator reconsiders the space and use of the whiteboard (e.g. brainstorming), there can be a shift in

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