



Considering Contextual Knowledge: The TPACK Diagram Gets an Upgrade

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The TPACK (or Technological Pedagogical Content Knowledge) framework describes the kinds of knowledge required by teachers for successful integration of technology in teaching. This idea was in the zeitgeist in the early 2000s, with scholars working on variations of the idea (Angeli & Valanides, 2005; Koehler & Mishra, 2005; Niess, 2005; Pierson, 2001). Three key publications pushed this idea into the forefront. These included a *Teachers College Record* article by Mishra and Koehler (2006), the *Handbook of TPACK for Educators* published by (American Association of Colleges of Teacher Education Committee on Innovation and Technology, 2008), and this journal's editorial renaming TPACK as TPACK (Thompson & Mishra, 2007–2008).

The TPACK framework has had a strong influence on research and practice in teacher education and professional development and inspired extensive research and scholarship. Since 2009 there have been over 1200 journal articles and book chapters, over 315

dissertations and 28 books with TPACK as the central construct (Harris & Wildman, 2019). The TPACK framework is most recognized by the TPACK diagram—three interlocking circles (TK, CK, and PK) with an outer dotted circle (context). This image has evolved and there have been attempts to revise, reimagine, and redesign the existing model. But the canonical image has persisted, relatively unchanged, since around 2009.

I argue that there is a semantic inconsistency in this highly reproduced, canonical image of TPACK, which can be addressed by a relatively minor, but important, tweak to the canonical TPACK diagram. This inconsistency involves what a circle (or more accurately, an enclosed space) means in the diagram. The three overlapping circles at the center of the diagram (T, P, and C) represent aspects of teacher knowledge, the K in TK, PK, and CK. A circle encloses space—so one can say that (in the TPACK diagram):

An enclosed space = knowledge.

This is why the overlaps (TPK, PCK, TCK), although not circles, can be seen as knowledge as well—they enclose space!

This brings us to the larger dotted circle's

inconsistency. The outer dotted circle encloses a space but it is not designated as a form of knowledge. It is labeled “Context” or “Contexts.” Since TPACK is a framework for teacher knowledge, maintaining semantic consistency requires that every enclosed space represent some aspect of teacher knowledge. That works for TK, PK, and CK (and the overlaps, TCK, PCK, TPK, and TPACK) and should for the outer dotted circle too.

Of course, seeing this, there is an easy solution. We would just rename the outer dotted circle “Contextual Knowledge” (i.e., the teacher's knowledge of the context) to resolve this. Contextual Knowledge would be everything from a teacher's awareness of available technologies, to the teacher's knowledge of the school, district, state, or national policies they operate within.

There is an added benefit to this move to Contextual Knowledge. This makes the outer circle another knowledge domain that teachers must possess to integrate technology in teaching. This, in turn, implies that contextual knowledge is something that we (as teacher educators) can act on, change, and help teachers develop. Just as we seek to develop teachers' knowledge types and overall TPACK, it becomes clear

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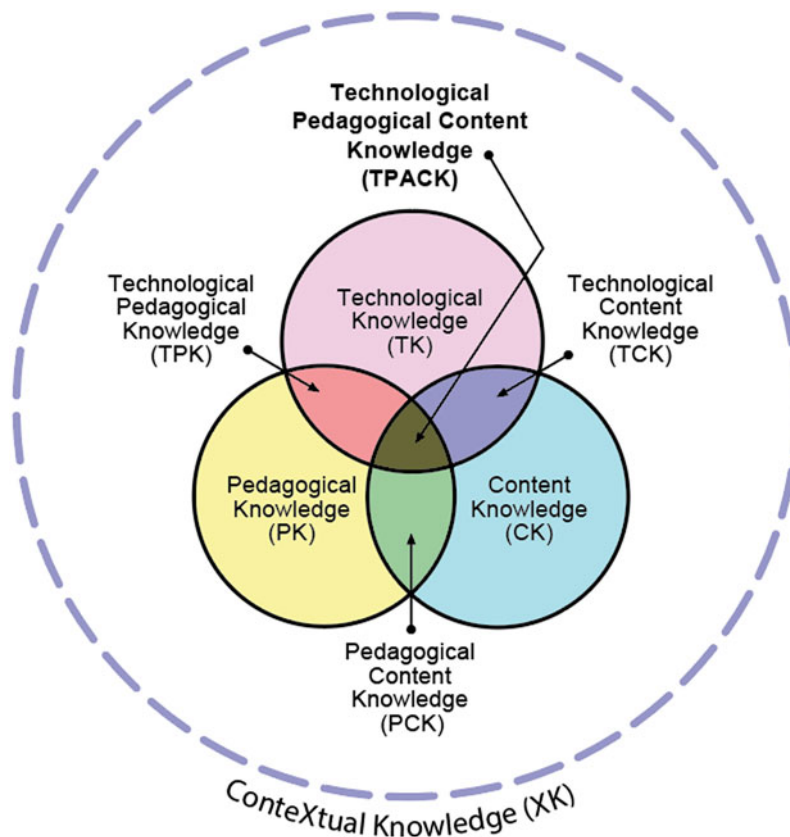


Figure 1. Revised version of the TPACK image.

that we ought to work toward increasing their contextual knowledge as well. Contextual knowledge becomes of critical importance to teachers, and a lack of it limits the effectiveness and success of any TPACK development, or a teacher’s attempts at technology integration.

It is not that researchers and practitioners have not paid attention to context (see Rosenberg & Koehler, 2015)—only that this nuance was not integral to the current representation of TPACK, hence limiting its application.

But if we label this outer circle “Contextual

Knowledge,” then what should its acronym be? CK is taken (for Content Knowledge) and another CK would be confusing. Our suggestion would be to call the outer dotted circle XK for “conteXtual Knowledge,” distinguishing it from CK. Additionally, using X for conteXtual could be appropriate because X usually denotes a variable, and contextual knowledge often is highly variable. Figure 1 shows the revised version of the TPACK diagram.

The addition of XK to the diagram has another benefit. It highlights the organizational and situational constraints that teachers work

within. The success of their efforts depends not as much on their knowledge of T, P, C and its overlaps, but rather on their knowledge of the context. This allows us to go beyond seeing teachers as designers of curriculum within their classrooms but rather as *intrapreneurs*—knowing how their organization functions, and how levers of power and influence can effect sustainable change. This is XK—*Contextual Knowledge*.

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