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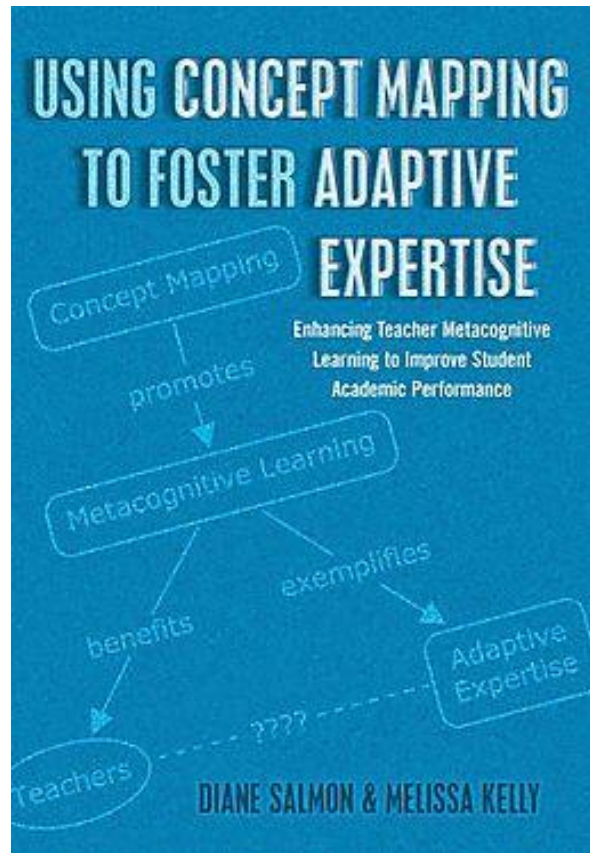
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Reviewed by Jan K. Williams
Texas Tech University
United States

Using Concept Mapping to Foster Adaptive Expertise by Diane Salmon and Melissa Kelly is an informative book that extends concept mapping from a student learning strategy to a tool for teachers to promote their own metacognitive learning. While concept mapping has long been used for students to organize and construct knowledge by creating a visual map, teachers have generally not used this process for their own planning of lessons. Described by Hyerle (2009) as “thinking inside and outside of the box” (p. 91), the mapping process allows teachers to learn metacognitive skills by scaffolding information in a visual way that will lead to a deeper understanding of the subject matter. Teachers become the learners and progress from novices to experts in instructional planning to improve their practice (p. 3).

Following the pedagogical view of Kolb, Fry, and Jarvis (Jarvis, 1992; Kolb & Fry, 1975), the authors propose concept mapping as a method to grow and improve



meaningful learning. As Davis (2014) notes, teachers benefit from using a visual representation when constructing concept maps. *Using Concept Mapping* explores in detail the multiple benefits of this approach. Concept maps increase efficiency in designing learning opportunities for students, while also helping teachers think about and extend their professional knowledge. Teachers teaching across multiple disciplines can construct a collaborative multidisciplinary concept map that aligns interrelated big ideas and helps ensure that students experience a coherent curriculum (p. 161). Concept mapping also helps teachers teaching at different grade levels construct a concept map of student learning progression that makes shared expectations for student growth within a domain (p. 161).

The goal of this volume is to help teachers learn and integrate concept mapping into their instructional planning to build their adaptive expertise. The authors offer a research-based framework for concept mapping as well as practice in concept mapping to develop the skills teachers need to encourage metacognitive learning. The authors include many examples of concept maps for teachers to organize knowledge in subject areas such as beginning reading, fractions, and U.S. government (p. 114-123). By using structures such as spokes, chains and hierarchical networks, teachers not only learn to use concept maps for organization of information but also increase their own understanding of the subject matter content.

The authors organize their book around three main parts: the theoretical and empirical basis for teacher concept mapping; the four core practices of concept mapping; and the tools for integrating multiple perspectives within and across concept maps. Part 1 discusses three main ideas that the authors describe as “central to the book”: the theory of concept mapping, adaptive expertise, and metacognitive learning (p. 4). Grounded with a solid review, research literature, the authors further developed their theory of

concept mapping as they worked with teachers. They observed teachers using thinking skills to create concept maps and graphic representations as tools to display the knowledge. As a result, metacognitive learning, or focused awareness about a person’s thinking, led the teachers to become adaptive experts in their own learning activities. The authors discuss the scaffolding process that leads novice teachers to become experts in student learning. Adaptive experts continually look for ways to extend what they know to “deepen, clarify, and document relationships among key concepts” of the knowledge bases of teaching (p. 11).

Part 2 outlines the four core practices of concept mapping that the authors suggest are useful in any subject area. First, selecting the *big ideas* implies that teachers identify the key ideas that are important for their students to learn. They gather this information from relevant resources and their own knowledge bases. Second, articulating *linking phrases* allows teachers to think deeply about the conceptual relationships and how to specify them. Third, teachers analyze the topic by *organizing concept structures* and recognize the relationships that present themselves. Lastly, teachers focus on *creating conceptual coherence* by integrating structures on the map (discussed in Chapters 6 and 7). This process is important for teachers metacognitive thinking and fostering tighter integration of the three key knowledge bases for teaching: knowledge of content, instruction, and students (p. 70).

Part 3 extends the practices of concept mapping for instructional planning by illustrating different perspectives of teachers, mentors and collaborative teams of educators. The authors relate how teachers self-monitor their instructional planning by evaluating metacognitive feedback in their concept mapping of a subject. The book provides a rubric that supports the thinking process and directs teachers as they review and interpret feedback from the concept mapping. In one example, the teacher used the rubric to

evaluate the quality of his/her maps in each subject. The maps revealed some well-developed instructional subjects or topics and others underdeveloped. The underdeveloped concept map provided a starting point for a mentor to help the teacher understand the feedback. Together, they participated in a four-step mentoring process that visually showed the teacher's pedagogical content knowledge for the subject and the next steps to integrate his/her knowledge into teaching.

According to the authors, collaborative teams made up of no more than three or four teachers, may use concept mapping to plan for student learning. Concept mapping can help teachers capture ideas, making them explicit, and provide an avenue for sharing and refining the group's thinking (p. 161). The book presented an example of collaborative concept mapping by three kindergarten teachers who wanted to improve their students' growth. They individually constructed concept maps for reading, speaking, and listening for kindergarten and first grade. They compared, merged, and elaborated on the maps by adding links and crosslinks between the major concepts. The teachers debated the significance of concepts, deleted less important ones and refined the remaining concepts to address focus questions they had at the beginning of the process. As the example demonstrates, collaborative concept mapping can lead to joint metacognitive learning and adaptive expertise that teachers may not have been able to achieve on their own.

The authors also provide a discussion of the tools that enable teachers to construct

concept maps. These tools range from pencil and paper to more advanced technologies such as Inspiration software, Mental, and Cmap Tools. In this section, the authors present not only the capabilities of the tool for concept mapping but also how the tool can support and facilitate the construction process for metacognitive learning.

Whether used by teachers or students, concept mapping and the promotion of meaningful learning would be a benefit to any educational program. *Using Concept Mapping to Foster Adaptive Expertise* might also serve as a teacher preparation textbook for college instructors to use in teaching any content area because concept mapping can "significantly add to the quality of university teaching" as it promotes meaningful learning (Hay, Kinchin, & Lygo-Baker (2008). For example, I slowly warmed up to the method and envisioned two creative applications of concept mapping. One is mentoring graduate students by teaching them to use concept maps while they are writing their dissertations. The second is in a comprehensive literature review to provide an audit trail for the search of information, which would mean tracking each search strand, term used to search, and database (Onwuegbuzie & Frels 2016).

Using Concept Mapping to Foster Adaptive Expertise offers a new twist on the concept mapping, a process that has mainly been used by students. While introducing a compelling argument for teachers to plan instruction by using concept mapping, the authors less forthcoming in providing a detailed guide to direct teachers how to integrate concept mapping into their teaching agenda.


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About the Reviewer


Jan K. Williams holds a Ph.D. degree from Texas Tech University in Curriculum and Instruction. Her research interests include teacher use of digital technology and media in schools to facilitate learning for students.



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