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Images of expertise in mathematics teaching.

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Summary: In this chapter we present a brief portrait of how researchers engaged in the study of mathematics teaching have understood teaching expertise, a portrait that is attentive to the diversity that has existed and continues to exist in the field. To do so we first adopt a historical perspective and attempt to capture some of the trends in how teaching expertise has been conceptualized, with an emphasis on how these trends were driven by broader changes in educational research. In particular, we trace the study of mathematics teaching through the traditions of process-product research, cognitive research, subject-specific cognitive research, situated cognition research, and design research. We then provide some sense for the diversity of perspectives and approaches to mathematics teaching that are currently prominent by presenting four images of mathematics teaching practice. We describe how researchers have tacitly conceived of mathematics teachers as either diagnosticians of students' thinking, conductors of classroom discourse, architects of curriculum, or river guides who are flexible in the moments of teaching. An awareness of these images of expertise will help the field both recognize and situate new images, allowing us to use them in productive ways to further understand the work of mathematics teaching.

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