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The mathematical knowledge and beliefs of elementary mathematics specialist-coaches.

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Summary: This paper reports on one aspect of a larger research project conducted in the United States that designed and implemented an elementary mathematics, specialist-coach preparation program and evaluated the effect of qualified specialist-coaches on student achievement. The paper discusses a conceptual framework for coaching in which a specialist-coach is to serve as a “more knowledgeable other” for a community of practice in a school, and ultimately to impact both the knowledge and professional practice of teachers and the school’s mathematics program as a whole. Specialist-coaches have unique opportunities and challenges in this daunting task, and the paper discusses one program designed to prepare well-respected teachers for the transition to the role and responsibilities of a specialist-coach. The reported analyses document changes in specialist-coaches’ mathematical content knowledge, mathematical knowledge for teaching, and beliefs regarding mathematics teaching and learning over the preparation program and during the specialist-coaches’ first years of service in a school. These specialist-coaches’ mathematical content knowledge grew and their beliefs became more aligned with a making sense perspective during the preparation program, and their changed state persisted throughout 2–3 years of service as specialist-coaches. Evidence addressing the specialist-coaches’ mathematical knowledge for teaching was mixed, but suggested that growth occurred both during the preparation program and in their first year of coaching, stabilizing in the years following.

Classification: B50 C20

Keywords: mathematics coaching; elementary mathematics specialist; school-based mathematics teacher educators; professional development

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