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Knowledge and beliefs in mathematics teaching and teaching development.

The International Handbook of Mathematics Teacher Education 1. Rotterdam: Sense Publishers (ISBN 978-90-8790-541-5/pbk; 978-90-8790-542-2/hbk). 330 p. (2008).

Publisher's description: This book addresses the learning of mathematics teachers at all levels of schooling to teach mathematics, and the provision of activity and programmes in which this learning can take place. It consists of four volumes. Volume 1 presents research and theoretically informed perspectives on knowledge and beliefs in mathematics teaching and teaching development. The chapters together address the "what" of mathematics teacher education, meaning knowledge for mathematics teaching and teaching development and consideration of associated beliefs. As well as synthesising research and practice over various dimensions of these issues, the volume offers advice on 'best practice' for teacher educators, university decision makers, and those involved in systemic policy decisions on teacher education. There are four sections. The first, about mathematics discipline knowledge for teaching, contains chapters on mathematics discipline knowledge from both East Asian and Western perspectives, with separate chapters addressing primary/elementary teacher education and secondary teacher education, along with a chapter on approaches for assessing this mathematics knowledge of prospective teachers. The second section describes ways of thinking about how this mathematical knowledge is used in teaching. It includes chapters on pedagogical content knowledge, on knowledge for and about mathematics curriculum structures, the way that such knowledge can be fostered with practising teachers, on a cultural analysis of mathematical content knowledge, and on beliefs about mathematics and mathematics teaching. The third section outlines frameworks for researching issues of equity, diversity and culture in teaching mathematics. The fourth section contains a description of an approach to methods of researching mathematics discipline knowledge of teachers. Together the chapters not only confirm that the knowledge that mathematics teachers need includes both mathematical and pedagogical aspects but also explore the subtlety of the various dimensions of that knowledge. There are also suggestions of the relative emphases on the respective dimensions and ways that teacher educators might support prospective and practising teachers in acquiring and developing that knowledge. The articles of this volume will not be indexed individually.

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