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Opportunity to learn in the preparation of mathematics teachers: its structure and how it varies across six countries.

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Summary: Cross-national research studies such as the Program for International Student Assessment and the Third International Mathematics and Science Study (TIMSS) have contributed much to our understandings regarding country differences in student achievement in mathematics, especially at the primary (elementary) and lower secondary (middle school) levels. TIMSS, especially, has demonstrated the central role that the concept of opportunity to learn plays in understanding cross-national differences in achievement (Schmidt et al., *Why schools matter: A cross-national comparison of curriculum and learning* 2001). The curricular expectations of a nation and the actual content exposure that is delivered to students by teachers were found to be among the most salient features of schooling related to academic performance. The other feature that emerges in these studies is the importance of the teacher. The professional competence of the teacher which includes substantive knowledge regarding formal mathematics, mathematics pedagogy and general pedagogy is suggested as being significant-not just in understanding cross-national differences but also in other studies as well (Hill et al. in *Am Educ Res J* 42(2):371-406, 2005). *Mathematics Teaching in the 21st Century* (MT21) is a small, six-country study that collected data on future lower secondary teachers in their last year of preparation. One of the findings noted in the first report of that study was that the opportunities future teachers experienced as part of their formal education varied across the six countries (Schmidt et al. in *The preparation gap: Teacher education for middle school mathematics in six countries*, 2007). This variation in opportunity to learn (OTL) existed in course work related to formal mathematics, mathematics pedagogy and general pedagogy. It appears from these initial results that OTL not only is important in understanding K-12 student learning but it is also likely important in understanding the knowledge base of the teachers who teach them which then has the potential to influence student learning as well. This study using the same MT21 data examines in greater detail the configuration of the educational opportunities future teachers had during their teacher education in some 34 institutions across the six countries.

Classification: B50 D20

Keywords: mathematics teacher education; teacher education curriculum; comparative study of teacher education; opportunities to learn; teacher preparation; empirical research

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