

The Relationships between Teacher Quality and Sixth Grade Students' Mathematics Competencies in Kenya and Zimbabwe

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Abstract

Students should begin to engage in problem-solving and higher order thinking skills in mathematics in the early years of school in preparation for 21st-century technology and problem-solving competencies. Using the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), this study examines the distribution of significant teacher quality factors related to sixth-grade students' mathematics competencies across the regions of Kenya and Zimbabwe. The mathematics competencies range from Pre-numeracy to Abstract Problem Solving level. First, we use a multi-level regression model to analyze the relationships between teacher quality and students' mathematics competencies to find out which teacher quality variables are important for the improvement in students' mathematics competencies in the participating countries. We then illustrate the distributions of the teacher quality factors within the regions in Kenya and Zimbabwe. From the multilevel model analysis, the teacher quality factors related to students' increase in mathematics competencies were teaching experience, mathematics competencies, and teachers' academic qualifications. We observe that students taught by permanently employed teachers had lower math competencies and that the days spent by the teachers in professional development influence students' mathematics competencies negatively. The distributions of these teacher quality factors that matter in sub-Saharan Africa are concentrated in the capital cities and particular regions in Kenya and Zimbabwe. Implications for policy and practice are discussed.

Keywords: Teacher quality, Mathematics learning, Primary education, Large scale studies

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