

Special Issue on Sciences and Mathematics Education: An Introduction

*By Gail Dickinson**

Health economics is a rapidly growing sub-discipline which provides Quality education for all students is a major concern worldwide. Ultimately, high quality education requires highly qualified teachers, high quality instructional materials and methods that promote thinking among students. Further, societal and political contexts mitigate teaching and learning. The papers in this issue explore the complex dynamics affecting instruction and achievement in science and mathematics. Rossi and Fernandez-Crispin, Primo, Lobaton, Olivera, and Galavan discuss strategies to improve K-12 pre-service and in-service teachers' practice. Rossi describes a synergistic program for pre-service and inservice chemistry teachers. Fernandez-Crispin et al. evaluate aspects of a teacher training workshop where elementary teachers assume the roles of students and reflect on their learning in science. Cepeda and Schwebach, et al. report on programs to improve university science and mathematics instruction. Schwebach et al. focus on improving courses for biology majors through active learning strategies whereas Cepeda compares the effects of widget use and widget construction in physics and mathematics courses for teachers. Holmberg and Ranagården explore students' and teachers' views of mathematics with an emphasis on the roles textbooks play in shaping those views. They find that textbooks play an important and sometimes unanticipated role in framing both teachers' and students' concepts of mathematics. They argue that teachers' and students' voices are critically important considerations for the research community. Huleihil and Huleihil examine the cultural, societal, and political factors leading to lower achievement among Arabic-speaking students in Israel. Many of these complexities are mirrored in other countries with low-achieving minority populations.

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