

Teachers and the Professional Education of Teachers

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Teachers

- Teachers are key
- Scale and urgency of the need for excellent teachers of mathematics
- Much policy and public interest; many debates about effectiveness of alternatives
- Need for evidence on the effectiveness of different programs and policies designed to recruit, prepare, support, and retain excellent teachers

Four areas of focus

1. Teachers' knowledge of mathematics
2. Teacher education and professional development
3. Elementary mathematics specialists
4. Recruitment and retention of teachers of mathematics

1. Teachers' knowledge of mathematics

- What relationships have been shown to exist between teachers' mathematical knowledge and students' achievement?

Seek to develop a firmer understanding of the mathematical knowledge needed for teaching: crucial to the other questions that our group is investigating

2. Teacher education and professional development

- What kinds of programs have been shown to help teachers develop the necessary mathematical knowledge and skills needed for teaching?
 - ❖ How can preservice programs effectively increase beginning teachers mathematical knowledge for teaching? How can inservice programs do so
 - ❖ Do particular designs or curricula make a difference for teachers' instructional skill and their students' achievement?
 - ❖ Is there evidence about how what kinds of professional preparation or requirements affect teachers' effectiveness, and how these compare?

3. Elementary mathematics specialists

- What are different models for “mathematics specialists” at the elementary level, in the U.S. or in other countries?
 - ❖ What is known about the effectiveness of different models of “specialists” for instructional quality and student achievement?
 - ❖ What are effective preparation programs and requirements for such specialists?

4. Recruitment and retention of teachers of mathematics

- ❖ What programs exist that effectively recruit able people into teaching?
- ❖ What is known about the incentives and supports needed for teachers' success and retention?
- ❖ What approaches and supports are most effective in hard to staff schools and districts?
- ❖ What alternative pathways into teaching exist and how effective are they in attracting effective math teachers?
- ❖ Which approaches work best to recruit and retain teachers who are effective in improving students' achievement?