

Changing the Face of Professional Development Voluntarily

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Teachers Are Key

- To enhancing learning in schools
- Extensive learning opportunities for teachers are required

National Research Council, 2000

Effective Teacher Professional Development

- **Addresses teacher and student needs:** appropriate for conditions in schools
- **Is long-term, ongoing, sequenced, and cumulative:** provides opportunities for new knowledge and skills, reflection time, and increasing abilities over time
- **Focuses on student learning outcomes:** enables teachers to use their new knowledge and skills
- **Models learner-centered instruction:** teach as you are taught
- **Uses formative and summative evaluation** for program improvement

Gaible and Burns

Informal Teacher Communities Enhancing Professional Development of Medical Teachers

“Informal teacher communities not only support the professional development of tutors, but also validate and strengthen their identity as teachers. They seem to provide a dialogical space where informal intercollegiate learning is stimulated, stories are shared, tacit knowledge is made explicit, concerns are shared, and teacher identity is nurtured.”

Van Lankveld, Schoonenboom, Kusurkay,
Beishuizen, Croiset, and Volman

Effective Collaborations Produce

- *Sustained teacher learning communities*, which use resources of the science institution to provide ongoing professional development for teachers on science content and/or pedagogies
- *District infrastructure development*, a collaboration between institutions and districts as part of long-term improvement strategies, including novice teacher training, ongoing professional development, and curriculum planning projects.

Gaible, et al.

Types of Math PD

- Math Circles—Formal or Informal
- Math Academies—Saturday Academy for Math (SA4M)

Math Circles and Professional Development

- Teachers' sense of self, including mathematics self-concept and self-efficacy, became stronger, and their understanding of the nature of mathematics evolved to include patterns, connections, and open-ended problems.
- Teachers' perceptions of effective mathematics pedagogy changed. The teachers in this study found that collaborating and struggling through non-routine problems was useful to their understanding of the problems and of teaching and learning mathematics

Hendrickson

The Beginning

- Saturday Academy for Math (SA4M) was created out of a need for teachers of grades Kindergarten through 4th grade to:
 - Unpack the Common Core State Standards for Mathematics,
 - Expand their mathematics content knowledge, and
 - Develop instructional tools and techniques to meet the demands and rigor of the standards and their students' needs

Structure of SA4M

- Built from the Standards for Professional Learning (2011) specifically around the principles of learning communities (Kanold, 2005), learning designs, and outcomes (Bransford, 2000)
- Learner-centered structure
- Teachers are active participants in building on their strengths, interests, and needs (Bransford, 2000; National Research Council, 2000)

Targeted Outcomes

- Opportunities to learn from their own practices, the practices of their colleagues, and the guidance of an elementary mathematics coach
- Offer teachers effective teaching and learning experiences
- Support and resources available needed for teachers and students to reach their maximum learning potential (NCTM, 2014)

Organization of SA4M

- Once a month for two hours
 - Initially in grade bands, K-2 and 3-4
 - 2017-2018: one whole group session with K-5 teachers (Steimle & James)
- Up to 16 contact hours of professional development a year with opportunities for extension and reflection

