Lenses on Learning: Research-Based Mathematics Professional Development for Instructional Leaders

"…districts should provide instructional leaders with professional development that helps them to create school conditions that appear to support student achievement…" (NRC, 2011)

The NRC report, *Successful K–12 STEM Education: Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics* recommends that schools and districts provide professional development for instructional leaders that will support their efforts to create school conditions conducive to STEM learning. The *Lenses on Learning* professional development materials support K–12 principals, teacher leaders, and district leaders to develop their instructional leadership for mathematics by focusing on issues of equity, assessment, data use, and support of high-quality mathematics instruction in schools.

INSTRUCTIONAL LEADERSHIP MATTERS

- Principals play a critical role in strengthening schools' mathematics programs (Grant, Nelson, Stimpson, 2009).
  - Foster a shared commitment to improving mathematics learning outcomes for all students
  - Engage with teachers and support strong mathematics teacher PD
  - Set expectations regarding teachers' integration into their classrooms of practices highlighted in PD
  - Relate math initiatives to wider school and district contexts
  - Publically support math initiatives to all stakeholders
- Instructional leaders' "leadership content knowledge" (LCK)—their ideas about the nature of mathematics and about mathematics learning and teaching—affects the ways they enact their roles (Nelson & Sassi, 2005; Stein & D'Amico, 2000; Stein & Nelson, 2003)

RESEARCH EVIDENCE

- *Thinking about Mathematics Instruction Research Project* (Goldsmith & Nelson (Eds), in preparation)
  - Mixed-methods experimental design
  - N=485 elementary and middle school principals
  - Participation in *Lenses* PD resulted in:
    - Increased emphasis on students' conceptual, as well as procedural, understanding
    - Gains in principals' mathematical knowledge for teaching
    - Increased use of mathematics knowledge when analyzing classroom events
- Secondary Lenses Study (Grant, Nelson, & Stimpson, 2009)
  - Investigated pre- and post-test changes in participants' understanding of math education
  - N=81 participants attended as part of district teams
  - Participation in *Lenses* PD resulted in:
    - Qualitative shift in pedagogical beliefs toward more student-focused instruction for 40% of participants
    - Increase in focus on collaborative, team-based work within school/district

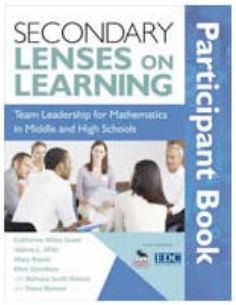
LENSES ON LEARNING PROFESSIONAL DEVELOPMENT MATERIALS

The *Lenses on Learning* professional development materials support K–12 principals, teacher leaders, and district leaders in developing their instructional leadership through focus on:

- The nature of high-quality mathematics instruction in schools
- Equitable access to rigorous mathematics education for *all* students
- A balanced assessment approach (assessment for and of learning)
- Strategic use of data

Lenses participants engage in hands-on mathematics work, analyze classroom video and student work, discuss research articles, and inquire into their own practice. *Lenses* materials address the mathematical processes and proficiencies emphasized in the Common Core State Standards.

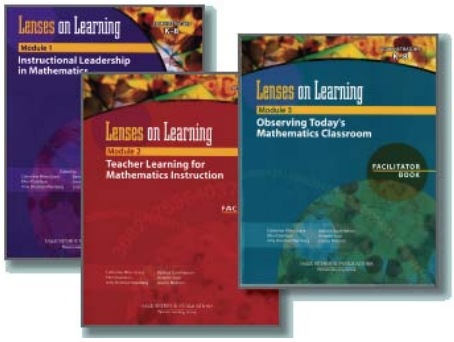
Secondary Lenses on Learning: Team Leadership for Mathematics in Middle and High Schools (Corwin Press)



Participants attend the course in school district–based teams and do the following:

- Learn about research-based practices supporting engagement and mathematics learning for a broad spectrum of students
- Examine current practices within the school and identify strengths, needs, and potential leverage points for future development
- Use these findings to create action plans addressing short-term and long-term goals
- Identify and commit to specific first steps to take, and plan for involving other critical players.

Lenses on Learning (grades K–8) (Pearson School Publishers)



Course 1: A New Focus on Mathematics and School Leadership

- Module 1: Instructional Leadership in Mathematics
- Module 2: Teacher Learning for Mathematics Instruction
- Module 3: Observing in Today's Mathematics Classroom

Course 2: Supervision: Focusing on Mathematical Thinking

For more information:
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