Learning to *do* the work of teaching in a practice-based methods course

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Session overview

1. Introduction: Reconceptualizing what it means for a methods course to be about *practice*
2. What should be the content of a practice-based course: Identifying the work of mathematics teaching
   - Decomposing practice
   - Criteria for "high-leverage" practices
   - Discussion
3. Implications for course design and assessment

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Mathematics methods planning group

- Diverse group of ~12 faculty, post-docs, and grad students who plan and teach 4 sections of math methods
- Weekly planning meetings to design and discuss collective lesson plan
- Observe and debrief lead class, revise lesson plan, teach other sections
- Oriented toward instructional support, curriculum development, and professional development for instructors

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Shifting focus

- Our methods course has always been closely tied to practice:
  - Records of practice
  - Field-based assignments such as conducting a student interview, teaching a math lesson
- Shift in recent years to learning to *do* the work of teaching
- Related to work by Grossman; Stein & Smith; Franke; Kazemi; and others

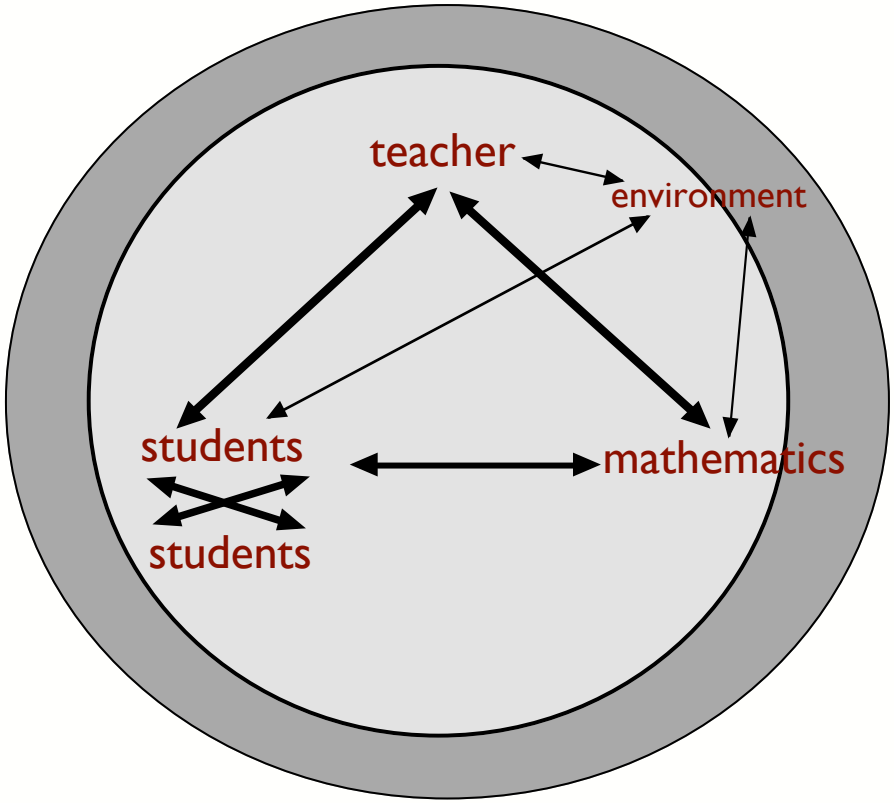
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Reconceptualizing "practice"

- Content: **teaching practices** and **mathematical practices** (Ball & Bass, 2003; Shulman, 2005)
- Design: Using **practice as a context** for learning (Lampert & Ball, 1998; Lave & Wenger, 1991) and **practice as rehearsal** (Farmer & Williams, 2005; Lampert, 2007)
- Assessment: Using **practice as evidence** of preservice teacher learning (Stiggins, 1997)

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Identifying the work of mathematics teaching



Issues for teacher education:

- Teaching is complex
- The work of teaching can be hard to "see"
- Limited amount of time in teacher education courses
- Limited access to field-based experiences
- Limited control over what encountered in field

How do we decide what to include in a methods course?

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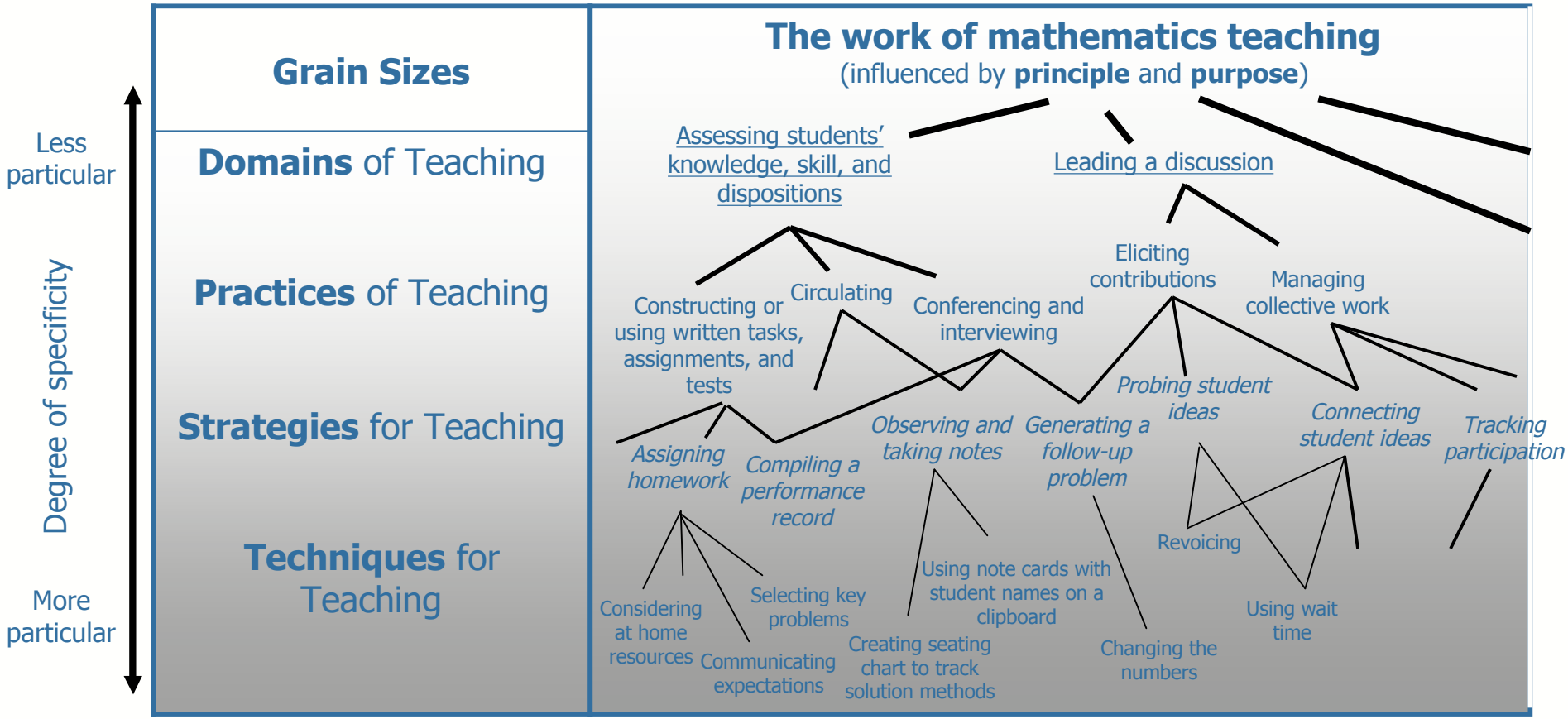
Decomposing practice

- Temporarily decompose* teaching into smaller practices whose aspects:
  - can be articulated, unpacked, studied, and rehearsed
  - can be reintegrated in more holistic acts of teaching
- Identify practices that are "high-leverage" for beginners and are of appropriate grain size for a course

*(Grossman & Shahan, 2005)

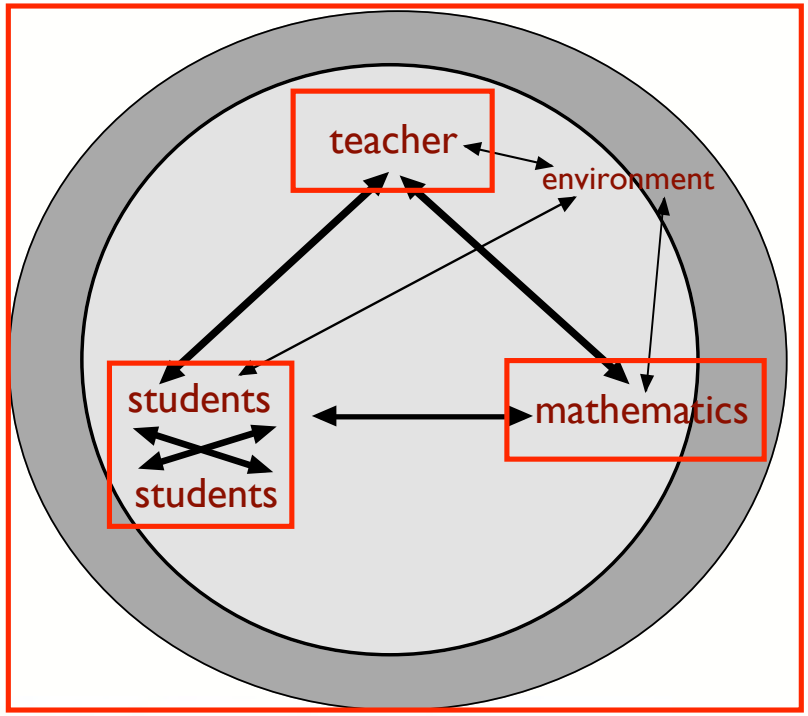
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Grain sizes of mathematics teaching practice



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Criteria for **high-leverage practices** for mathematics teaching

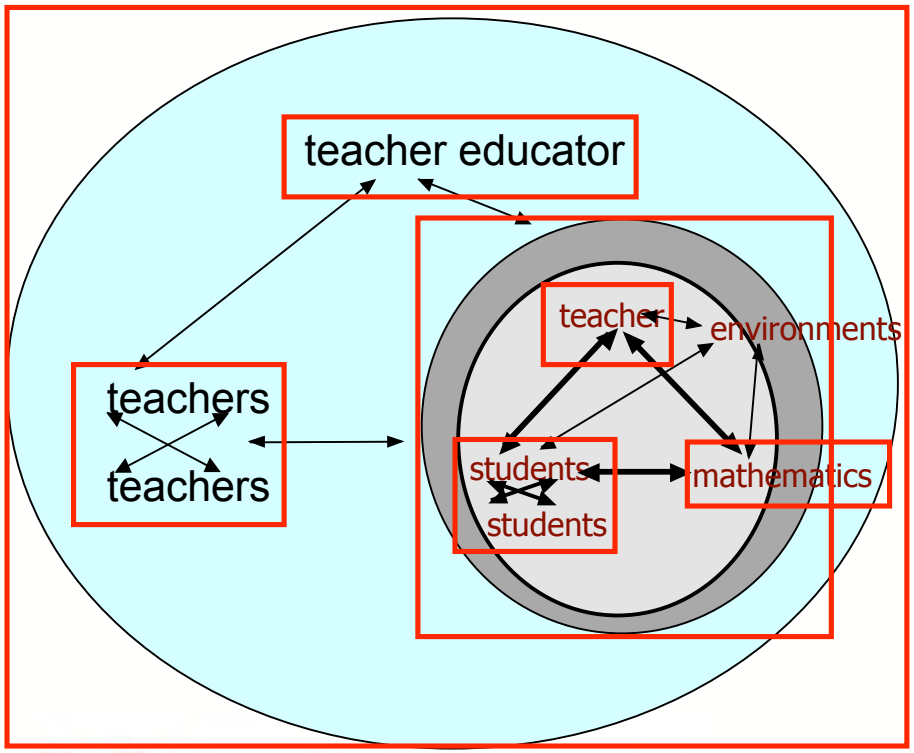


- Occurs frequently in mathematics teaching
- Applies across different approaches to teaching mathematics
- Supports work that is central to mathematics
- Helps to improve the learning and achievement of all students

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Criteria for **high-leverage practices** for mathematics teaching



- Occurs frequently in mathematics teaching
- Applies across different approaches to teaching mathematics
- Supports work that is central to mathematics
- Helps to improve the learning and achievement of all students
- Can be articulated and taught
- Is accessible to preservice teachers
- Grain size can be narrowed and broadened for meaningful work in a semester-long course
- Is able to be practiced by beginners in their field-based settings

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Course content: Principled practice

Guiding Principles **Domains of Practice**	Attending to the **integrity of the mathematics**	Committing to the learning and achievement of **all students**	Establishing and managing a **productive learning environment**	Learning from and systematically **improving practice**
Leading a whole class discussion about mathematics				
Representing mathematical ideas				
Assessing students' knowledge, skill, and dispositions				
Planning mathematics lessons				

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Course content: Principled practice

Guiding Principles **Domains of Practice**	Attending to the **integrity of the mathematics**	Committing to the learning and achievement of **all students**	Establishing and managing a **productive learning environment**	Learning from and systematically **improving practice**
Leading a whole class discussion about mathematics	Eliciting student contributions (e.g., questioning) Managing collective work Concluding a discussion			
Representing mathematical ideas	Modeling procedures Connecting representations Analyzing representations			
Assessing students' knowledge, skill, and dispositions	Circulating while students are working independently Conferencing and interviewing Constructing a written assessment			
Planning mathematics lessons	Analyzing lesson materials & tasks Preparing lesson enactment			

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Discussion questions

- Based on these criteria, what practices should be taught in a methods course?
- What, if any, new ideas do these experiences reflect that could be added to the other high-leverage criteria?

Criteria for high-leverage practices:

- Occurs frequently in mathematics teaching
- Applies across different approaches to teaching mathematics
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Designing opportunities to learn practice: Challenges and our responses

Challenges

- How will preservice teachers learn about and develop necessary practical and principled control over high-leverage practice?
- How will preservice teachers engage with multiple high-leverage practices within the relatively short span of a single course?

Our responses

- Practice as a context
- Practice as rehearsal
- Layering of recurrent, but increasingly sophisticated engagement
- Reconsidering the role of (written) reports about their practice

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Assessing teaching practice: Challenges and our responses

Challenges

- How can course assessment support an emphasis on high-leverage practice?
- How will course instructors make valid judgments about the proficiency of complex enacted practices?

Our responses

- Practice as evidence of preservice teacher knowledge and skill
- Focus on practices that have been the repeated focus of course work and that can be reflected on through course principles
- Design assessments for which field contexts afford opportunities to demonstrate competence
- Develop tools that allow instructors to appraise performances as they unfold

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The MMPG website soon to be a part of the Carnegie Foundation's "Inside Teaching" archives

http://gallery.carnegiefoundation.org/insideteaching/quest/collections.html

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