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Goals for this session

1. Clarify "teaching quality"
2. Consider alternatives for how to get it, and make argument for focusing on practice
3. Explore components of what would be involved in building a system focused on producing responsible teaching practice

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Teachers matter—a lot

- Differences in teachers account for 12%-14% of total variability in children's mathematical achievement in each of grades 1, 2, and 3.
- Children assigned to three effective teachers in a row score at the 83rd percentile in math at the end of 5th grade; children assigned to three ineffective teachers in a row score only at the 29th percentile.
- The cumulative effects of being taught by a highly effective teacher can substantially reduce differences in student achievement that are due to family background.

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Not just any teaching. We want . . . "_____ teaching"

- effective
- learner-centered
- direct and explicit
- ambitious

. . . high-quality

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The adjectives for teaching: (Why) do we need them?

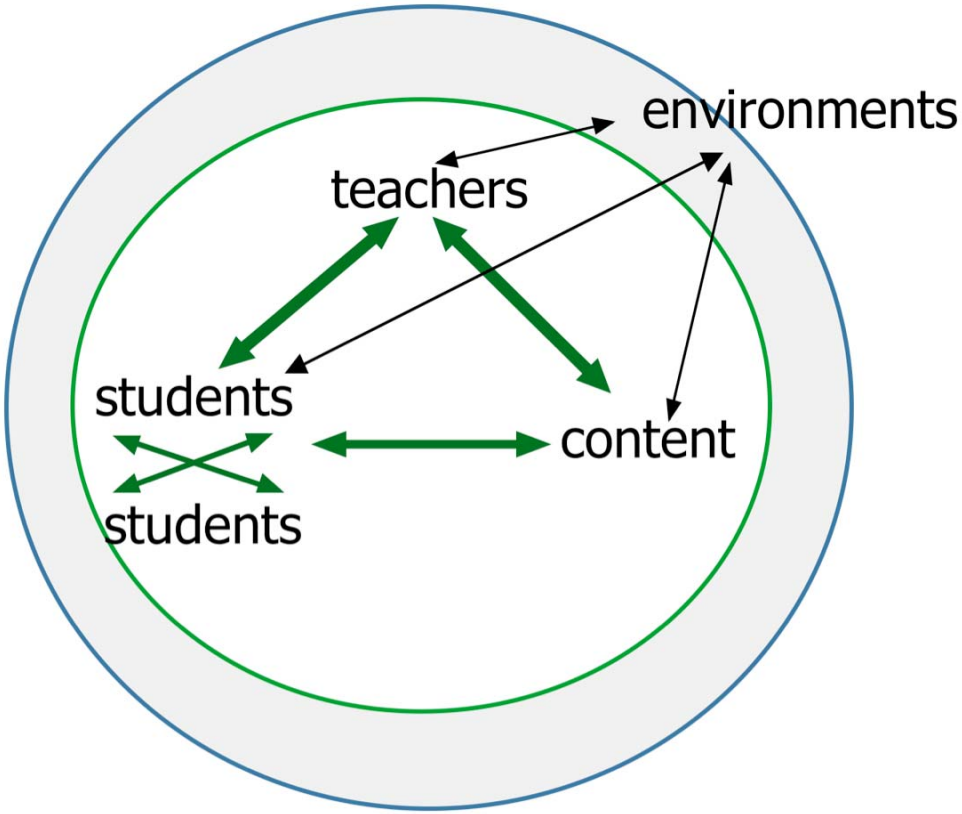
1. To ensure the connection to student learning (e.g., effective)
2. To name the surface features (e.g., direct and explicit, learner-centered)
3. To specify the learning goals (e.g., ambitious)

Do other professions do this? (e.g., effective nursing)

Do the skilled trades do this? (e.g., ambitious plumbing)

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What is (responsible) teaching?



Takes responsibility for:

1. deliberately maximizing the quality of the interactions . . .
2. . . . in ways that maximize the probability that students learn
3. . . . worthwhile content and skills (Common Core provides the ground for this)

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We know that every student does not get responsible teaching every day, in every subject.

How could we achieve that goal?

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Two schools of thought, or bets

1. Focus on teachers

- recruitment, selection
- rewards and sanctions

2. Focus on teaching

- training
- assessment
- (curriculum)

What are the reasons to bet more on one or the other?

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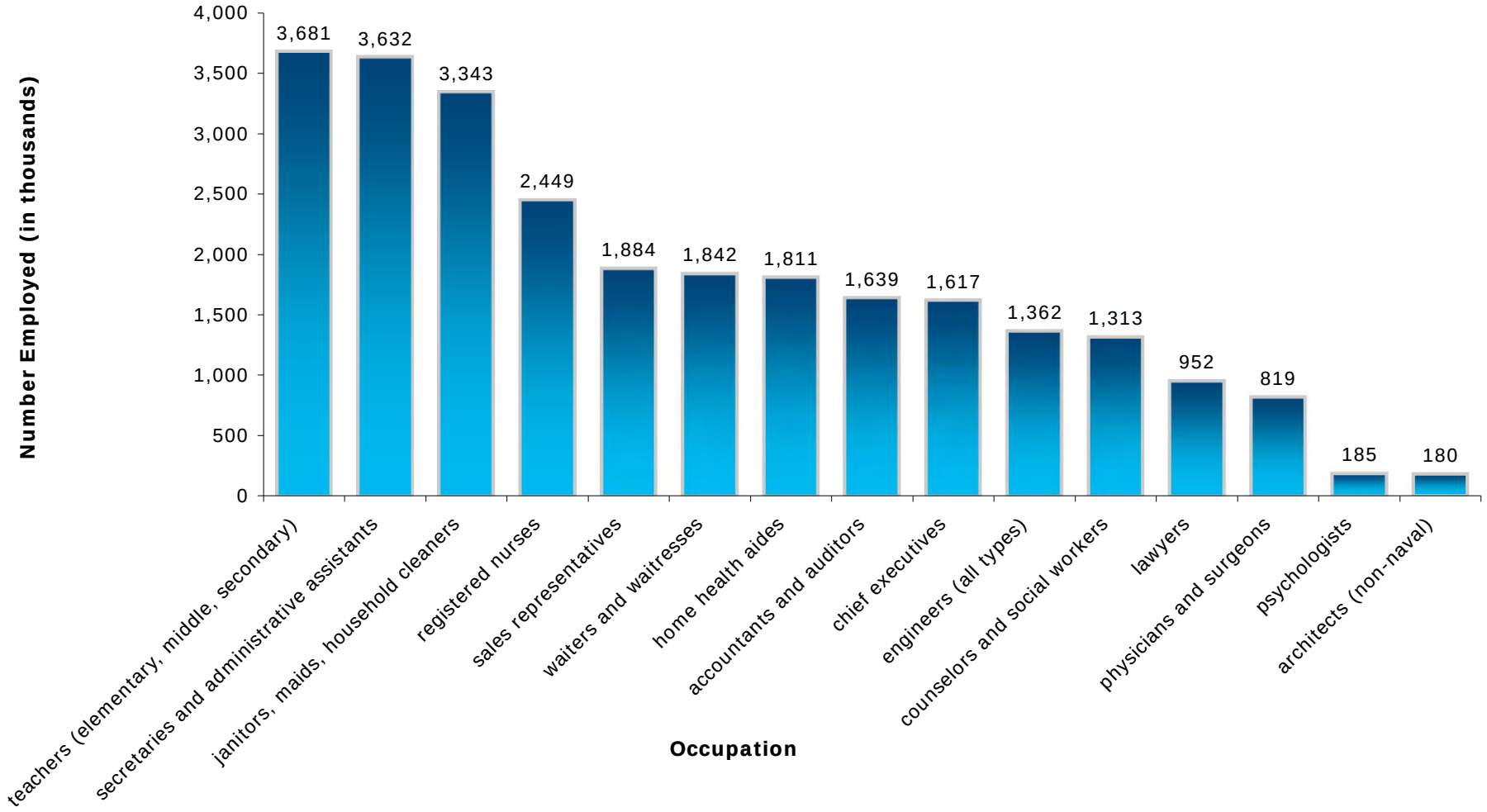
Why the problem is one of professional training

The scale of the need

Teaching as unnatural, intricate, and deliberate work

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The realities of scale



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March 7, 2010

Sunday NYT magazine

- Elizabeth Green

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No reliable *system* for preparing and developing teachers in the U.S.

- No common curriculum for P-12 schools (see D.K. Cohen, *American Educator*)
- No common curriculum for teacher training — specific, professionally-agreed upon learning objectives for new or practicing teachers
- Over 2,000 independent providers of initial teacher training, many more "programs"
- No common standard of performance for entry to independent practice with (on) young people
- Teachers report doing most of their learning on the job

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Standards for plumbing

- Install copper and copper alloy piping
- Build a plumbing trap
- Vent a sanitary drainage system
- Disassemble and rebuild a centrifugal compressor
- Maintain joints, connections, supports, and hangars
- Install and maintain storm drainage systems

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Plumbing training and assessment



- Clear, detailed performance expectations
- 5 year apprenticeship
- 1700-2000 hours on-the-job training
- 246 hours related classroom instruction
- 1-year probationary period with on-the-job evaluations

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Standards for medical practice

e.g., Conduct a chest examination:

- Observe respiratory efforts and note presence/absence of respiratory distress
- Confirm midline tracheal position with gentle palpation anteriorally
- Percuss the chest on left and right
- Ascultate the chest using using the diaphragm of the stethoscope on both right and left sides

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Physician training and assessment

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Standards for piloting

- Conduct a preflight inspection
- Perform normal and cross-wind approaches and landings
- Execute straight turns and climbing turns
- Perform effective visual scanning
- Avoid a runway incursion
- Perform crossed control stalls
- Perform s-turns across a road

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Pilot training and assessment



- 100+ hours of flight-time
- Knowledge tests
- Practical tests conducted by an FAA inspector

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No equivalent in teaching

- Performance expectations for novice and more experienced teachers underspecified
- Teaching standards often focus on process rather than on the specific skills involved in teaching specific content, e.g.:

"The teacher uses a variety of instructional strategies to engage students in challenging academic content."

rather than

"The teacher uses probing questions to provoke students' engagement in the main themes in Romeo and Juliet in order to introduce the play."

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An insufficient training and assessment (licensure) system

- Most training and assessments focus on knowledge rather practice
- No assessments measure a candidate's capacity to teach specific content to specific children
- Assessments of practice tend to be portfolio-based, reflection-oriented, and under-detailed

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Core components of practice-centered training for teaching

- **Curriculum**: What is there to learn in order to become a competent beginning teacher?
- **Instructional activities and settings**: What specific approaches and settings work best to prepare and support novices as they *do* the complex relational, psychological, social, and intellectual work of teaching?
- **Assessment**: How do we know when beginning teachers are ready to practice independently?
- **Ongoing support, advancement, and assessments**: What is the next level of licensed practice, and how do we create organizations and systems for it?

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R&D for a common core for building teaching practice

1. High leverage instructional practices
2. High leverage content
3. Approaches and settings for teaching and assessing actual practice

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"High-leverage" practices

- Have significant power in teaching because they:
  - Are central to the daily work of teaching
  - Attend to considerations of equity
  - Are most likely to support student learning
- Fundamental to the development of more complex practice

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The challenges of building a practice-focused curriculum

1. Developing a common and sufficiently precise language for the work of teaching
2. Articulating teaching practices at a useful grain size
3. Managing the specific versus general aspects of teaching proficiency
4. Distinguishing the highly predictable and routine ("textbook cases") from the uncertain and highly complex
5. Determining what is worth trying to teach about practice, and when
6. Making the connection to a *standard of responsible practice*, appropriately linked to student growth

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Identifying high-leverage practices (HLPs)

At Michigan, we have tried to manage these problems by:

- Enlisting the experience and imagination of a broad range of practitioners and researchers to create a comprehensive "map" of the work of teaching
- Specifying and using criteria for identifying those aspects of the work that are the most "high-leverage" for beginners
- Deliberately choosing tasks and activities at grain sizes useful for a curriculum of learning to teach

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Identifying high-leverage practices (HLPs)

- Identified and used a set of considerations to identify list of 88 potential HLPs
- Bundled or further decomposed items to achieve a shorter list that highlights a range of crucial features of the work of teaching

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Examples of high-leverage practices

- Explaining ideas and processes
- Choosing and using representations, examples, and models of core content
- Setting up and managing small-group work
- Recognizing and identifying common patterns of student thinking in a content domain
- Selecting and using specific methods to assess students' learning on an ongoing basis
- Conducting a meeting with a parent or caregiver

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What characterizes high-leverage content knowledge for teaching?

- Foundational to the ideas and skills of the K-12 curriculum; part of the Common Core
- Taught in some form or another in across several grade levels
- Occupies a lot of space in the curriculum
- Fundamental to students' learning, and is often a site for students' difficulties if not well-taught
- Often known only superficially by prospective teachers, or is new to them

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Knowing how to do multi-digit multiplication

$$\begin{array}{r} 49 \\ \times\ 25 \\ \hline \end{array}$$

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Seeing multiplication from the learner's perspective

(a)

$$\begin{array}{r} 49 \\ \times\ 25 \\ \hline 405 \\ 108 \\ \hline 1485 \end{array}$$

(b)

$$\begin{array}{r} 49 \\ \times\ 25 \\ \hline 225 \\ 100 \\ \hline 325 \end{array}$$

(c)

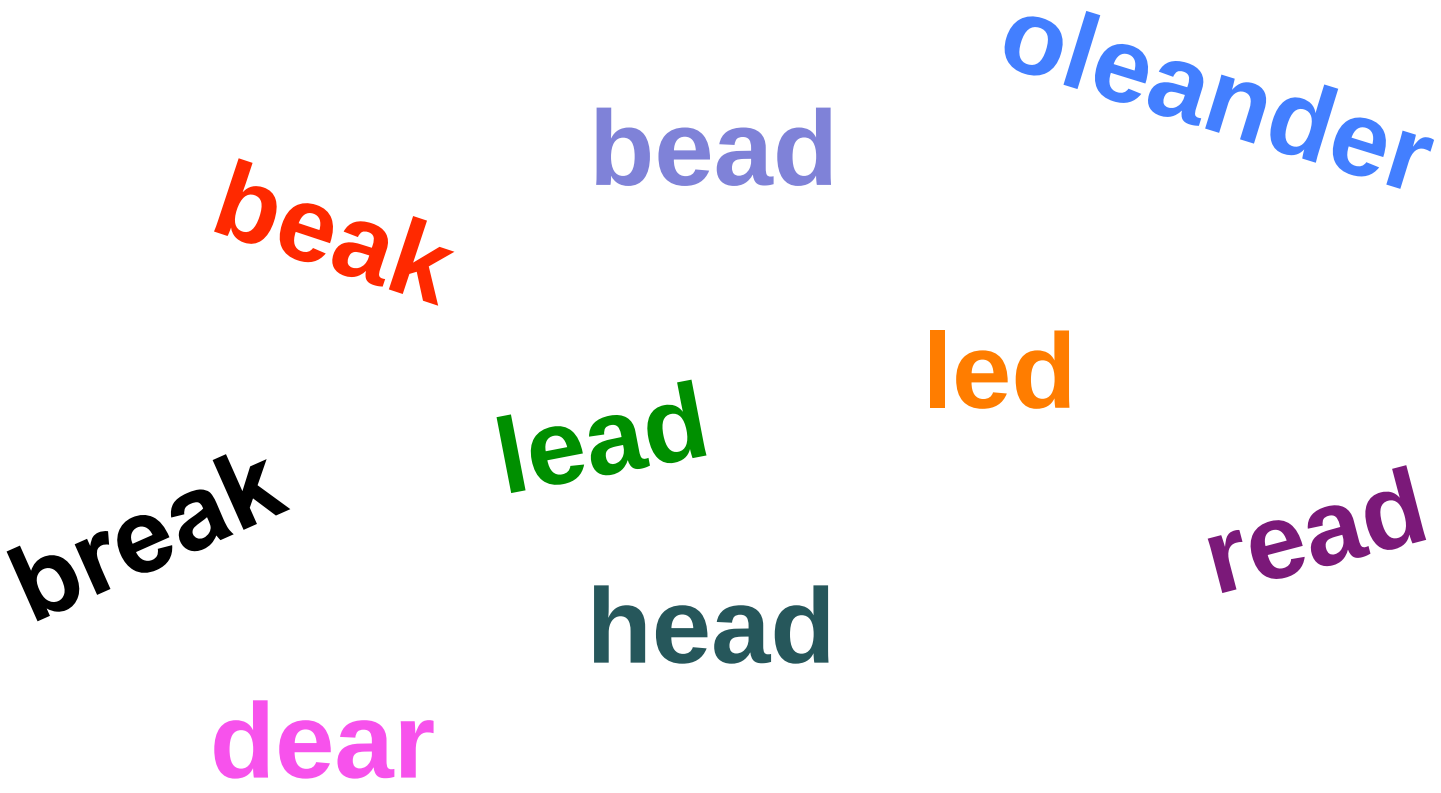
$$\begin{array}{r} 49 \\ \times\ 25 \\ \hline 1250 \\ 25 \\ \hline 1275 \end{array}$$

What might students have done to produce these answers?

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Knowing how to read words

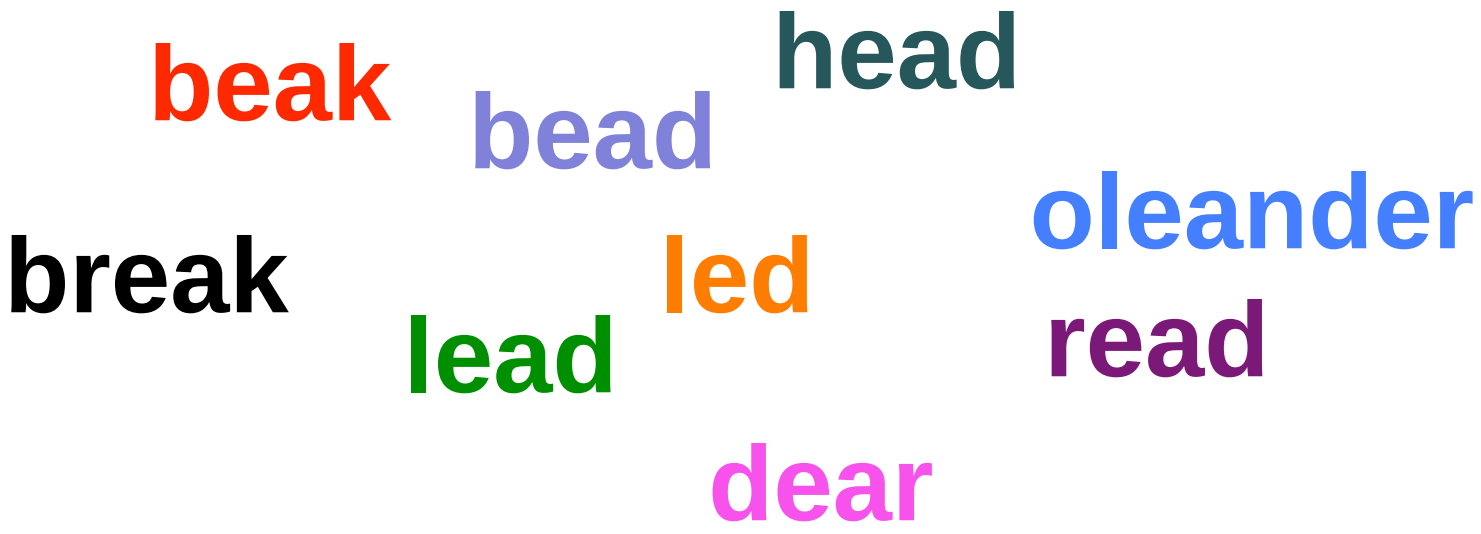
Read these words:



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Knowing reading for teaching it

What do you notice about these words?



What is this word? **read** Or this one? **lead**

How could you explain how to know which one is which?

How many different sounds can the letters "**ea**" make?

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Examples of high-leverage content for elementary math teachers

- Place value
- Computational procedures with whole numbers and decimals
- Fractions
- (Topics not chosen: probability, discrete mathematics, geometry)

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Examples of high-leverage content for secondary ELA teachers

- Writing a persuasive essay that supports a clear claim
- Using textual evidence to support analysis and argumentation in relation to a specific text
- Reading and analyzing *Romeo and Juliet*
- (Topics not chosen: writing a research paper, reading Sylvia Plath's *The Bell Jar*)

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The "new clinical"?

Lots of (new) talk about practice and clinical preparation, but . . .

Incomplete knowledge about how to design and deliver explicit clinical training in teaching

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The idea of "practice" in learning to teach is not new

- Teachers cite experience as most important source of learning (Jackson, Lortie)
- Student teaching (or "practice teaching") long a key component of teacher education
- Most programs include substantial practicum or field experience

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Building an explicit approach to the teaching of practice

Beyond the equivalent of "seat time"

Differentiating the long-held faith in "experience" and "practice" to build a curriculum for learning practice

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An assessment *system*

- Accompanying assessments would be detailed articulations of effective and less effective practice as well as video exemplars
  - Usable by teacher educators, professional developers, and teachers themselves to support improvement in practice

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Examples of specific assessments

Knowledge or skill to be assessed	Proposed mode of assessment	Details
Diagnosing common patterns of student thinking in elementary math and identifying an instructional response	Digital, online	Candidate will evaluate "textbook" and nonroutine cases of student work and either choose or briefly describe an appropriate instructional response
Conducting a whole-class discussion of a text in secondary English Language Arts	Live classroom episode in response to prompt; live or remote observation	Candidate will be given a short period of time in which to design and enact instruction in response to a specific prompt

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What it would take

A common core K-12 curriculum, or a means toward it

Developing common "standard of care" for practice, with assessments of performance linked to student outcomes

Developing capacity for the teaching of practice: resources, training, and shared professional knowledge

Working in common rather than in competition

Building continuous cycles of improvement through well-organized R&D

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Establishing an institute at the University of Michigan

A national laboratory for research and development on the professional preparation and continuing development of teachers, with four primary branches:

1. **Materials and resources** for teacher educators and professional developers;
2. **Training** for teacher educators and developers;
3. **Research** on our designs and on other approaches;
4. **Communications**, policy analysis and leadership for the improvement of teaching quality

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THANK YOU!

Slides will be available
at Deborah Ball's website

(Google or Bing "Deborah Ball")

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