Building a Practice-Focused Teaching Assessment System

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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
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
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 anteriorly
  • Percuss the chest on left and right
  • Auscultate the chest using using the diaphragm of the stethoscope on both right and left sides
Physician training and assessment
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
Pilot training and assessment

- 100+ hours of flight-time
- Knowledge tests
- Practical tests conducted by an FAA inspector
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.”
An insufficient licensing system

• Most assessments focus on knowledge rather than 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
• No clear link between teacher licensure and student learning
No reliable *system* for preparing and developing teachers in the U.S.

- 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; over 2,000 curricula
- No common standard of performance for entry to independent practice with (on) young people
- Teachers report doing most of their learning on the job
Knowing how to do multi-digit multiplication

49
x 25
Seeing multiplication from the learner’s perspective

(a) \[ \begin{array}{c}
49 \\
\times 25 \\
\hline
405 \\
108 \\
\hline
1485 \\
\end{array} \]

(b) \[ \begin{array}{c}
49 \\
\times 25 \\
\hline
225 \\
100 \\
\hline
325 \\
\end{array} \]

(c) \[ \begin{array}{c}
49 \\
\times 25 \\
\hline
1250 \\
25 \\
\hline
1275 \\
\end{array} \]

What mathematical steps could produce these answers?
What practices of teaching do you see?
Daily warm-ups: Practice with positive and negative mixed numbers

1. \(-4 \frac{2}{3} + 1 \frac{5}{6}\)

2. \(1 \frac{3}{8} - \frac{-3}{4}\)

3. \(-1 \frac{2}{5} \cdot -3 \frac{1}{2}\)

4. \(2 \frac{1}{8} \div 1 \frac{3}{4}\)
Modeling addition of negative and positive fractions

\[ -4 \frac{2}{3} + 1 \frac{5}{6} \]

- Red “pies” to represent negative numbers
- Green “pies” to represent positive numbers
Modeling $-4 \frac{2}{3} + 1 \frac{5}{6}$

- Red “pies” to represent negative numbers
- Green “pies” to represent positive numbers

Answer: $-2 \frac{5}{6}$
Barriers to an improved training and assessment system

1. A confounded view of professionalism
   • Agreement on the complexity of practice
   • Belief that teachers should develop their own approaches to practice
   • Disdain for prescriptiveness and detail as “deskilling” (ironic)

2. Lack of attention to teaching
   • Black box orientation: value-added fails to investigate variation
   • Orientation toward “constructivist” or “student-centered” classrooms
   • Weak language

3. Lack of infrastructure to support coherence across the education system:
   • No common curricula or criterion-referenced exams for K-12 students
Alternative systems: France & Singapore

- Common K-12 curricula and criterion-referenced exams
- Prospective teachers study the common curriculum in detail and practice how to teach it
- Inspection system evaluates teachers’ instructional capability in reference to the common curriculum
Proposition:

It is possible to build a teaching assessment system focused on practice.
What is “effective teaching”?

- Takes responsibility for deliberately maximizing the quality of the interactions . . .
- . . . in ways that maximize the probability that students learn
- . . . worthwhile content and skills (Common Core provides the ground for this)
The challenge

1. Specify and develop consensus around the core tasks and activities of teaching and around the content most important for teachers to understand deeply and flexibly

2. Choose the elements of practice most necessary for entrants to the profession

3. Articulate those elements at an effective grain-size

4. Manage the general and subject-specific aspects of teaching practice

5. Manage the context-specific nature of teaching practice
What characterizes “high leverage” practices?

• Central to building bridges between students and content
• Crucial to improve the learning and achievement of all students
• Address inequities that can arise from diversity of opportunity and experience
• Highly useful and frequent in teaching
• Not natural to do; improve upon normal help

(Ball, Sleep, Boerst, & Bass, 2009; Grossman & McDonald, 2008; Grossman, Compton, Igra, Ronfeldt, & Shahan, 2009; Lampert & Graziani, 2009)
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 on-going basis
• Conducting a meeting with a parent or caregiver
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
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)
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*)
What could our assessments look like?

<table>
<thead>
<tr>
<th>Knowledge or skill to be assessed</th>
<th>Proposed mode of assessment</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosing common patterns of student thinking in elementary math and identifying an instructional response</td>
<td>Paper and pencil, perhaps with video prompts</td>
<td>Candidate will evaluate examples of student work and either choose or briefly describe an appropriate instructional response</td>
</tr>
<tr>
<td>Conducting a whole-class discussion of a text in secondary English Language Arts</td>
<td>Live classroom episode in response to prompt; live or remote observation</td>
<td>Candidate will be given a short period of time in which to design and enact instruction in response to a specific prompt</td>
</tr>
</tbody>
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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
Other challenges (!)

• Accounting for variation in student population, teaching context
• Reliability
• Efficiency and affordability
What assumptions are we making?

• That a redesigned teaching assessment system could precipitate and support changes in teacher training

• That skillful teaching needs to be *learned*, and that people *can* learn to do it
Now is the moment

• Advent of the Common Core
• Intense preoccupation with debates over pathways to teaching
• Proposals to fire teachers who are “no good” in absence of valid assessments
• Our goals for students demand it
THANK YOU!
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Slides will be posted on Deborah Ball’s website
Google “Deborah Ball”