THE SCHOOL-TO-PRISON PIPELINE: WHAT DOES TEACHER EDUCATION HAVE TO DO WITH IT?
THE MORAL URGENCY, BY THE NUMBERS

16%, 40%, 48%

1/3

50

1.5 million

>1400

50%

70%

11%

78,000,000

2X

68%
THE “BLUE GREEN RECTANGLE” PROBLEM

1. What fraction of the big rectangle is shaded blue?

2. What fraction of the big rectangle is shaded green?

3. What fraction of the big rectangle is shaded altogether?
TEACHING IS COMPLEX WORK

1. “Off camera”: Before this episode
2. During these 5 minutes

What are some specific tasks required in order to teach this segment?
“OFF CAMERA”: BEFORE THIS EPISODE

1. Learn about individual children and what they know, care about, are worried about, can do, etc.
2. Establish the environment to manage behavior
3. Teach intellectual habits (e.g., drawing, speaking to peers, knowing and being able to choose and make different kinds of mathematical moves)
4. Choose the specific problem: Why that diagram? Why that wording? Why the three specific questions?
DURING THESE 5 MINUTES

00:00—Open the discussion: encourage participation by more students; establish expectation for explanation; use wait time; choose whom to call on; call on that child.

00:26—Mamadou gives answer of \( \frac{1}{2} \). Ask Mamadou to explain his reasoning; make sure other students can hear and are listening; interpret Mamadou’s explanation; recognize relationship to key mathematical idea; determine how to respond (whether to take up, whether to clarify question, whether to call on different student).

00:47—Ask Mamadou to come to the board and explain using the diagram. Orient class toward Mamadou’s explanation: get student to repeat what Mamadou said without explaining the error; comment about listening carefully; focus students on understanding reasoning.

01:37—Mamadou uses diagram to explain his answer. Invoke the working definition of fractions: ask Mamadou what he is calling the whole, how many equal parts, and how many are shaded.

02:26—Check class’ understanding and manage risk of losing rest of class: call on student to explain Mamadou’s solution; trace whole on diagram; establish correctness of Mamadou’s answer given his selection of the whole.

03:00—Clarify the whole in the original question. Validate Mamadou’s work, while establishing that the problem is asking something different. Ask student to read question and show on the diagram what is meant by “big rectangle”; ask Mamadou if he is watching; restate question and trace whole on a new copy of diagram.

04:06—Ask Mamadou to explain the difference between this question and the one he answered. Decide how to handle language “whole square” and “half the rectangle.” Elicit answer to original question.
## SKILLFUL TEACHING AS “UNNATURAL” WORK

<table>
<thead>
<tr>
<th>Common Ways of Being</th>
<th>Common Ways of Being in Teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asking questions to which you do not know the answers</td>
<td>Asking questions to which you often do know (at least part of) the answer</td>
</tr>
<tr>
<td>Telling and showing others, doing things for people</td>
<td>Listening to and watching others, helping others do</td>
</tr>
<tr>
<td>Assuming you know what others mean</td>
<td>Probing others’ ideas</td>
</tr>
<tr>
<td>Correcting and smoothing over mistakes</td>
<td>Provoking disequilibrium and error</td>
</tr>
<tr>
<td>Assuming others experience things as you do</td>
<td>Not presuming shared identity; seeking to learn others’ experiences and perspectives</td>
</tr>
<tr>
<td>Liking/disliking people</td>
<td>Seeing people more descriptively</td>
</tr>
<tr>
<td>Being “yourself”</td>
<td>Being in a professional role</td>
</tr>
</tbody>
</table>
...AND ITS CRUCIAL ROLE FOR OUR NATION’S MOST IMPORTANT RESOURCE

• 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.
DEMOGRAPHIC DIVIDE IN THE U.S.: K-12 TEACHERS AND STUDENTS

- Teachers:
  - Of Color: 17%
  - White: 83%

- Students:
  - Of Color: 44%
  - White: 56%
ENTRY-LEVEL TEACHING AS A CRITICAL FOCUS

1. More U.S. schoolchildren have a teacher with fewer than five years of experience than a teacher with any other number of years of experience.
EARLY CAREER TEACHING ON THE RISE
ENTRY-LEVEL TEACHING AS A CRITICAL FOCUS

1. More U.S. schoolchildren have a teacher with fewer than five years of experience than a teacher with any other number of years of experience.

2. Most beginning teachers say they are underprepared for teaching, and on average they are less effective.
EARLY CAREER TEACHING IS ON AVERAGE LESS EFFECTIVE

ENTRY-LEVEL TEACHING AS A CRITICAL FOCUS

1. More U.S. schoolchildren have a teacher with fewer than five years of experience than a teacher with any other number of years of experience.

2. Most beginning teachers say they are underprepared for teaching, and on average they are less effective.

3. Distribution of beginning teaching is concentrated disproportionately in low-income and high-minority schools.
A LEGACY OF BENIGN NEGLECT

- High demand led to an occupation that was easy to enter, and high turnover
- A broadly shared conviction that teaching cannot be taught, and depends on either
  - talent (the “natural born” teacher), or
  - “hard knocks” figuring out what works through experience
- The result? A “hit or miss” approach to supplying skillful teaching
- It’s time to put a stop to this.
NO PROFESSIONAL SYSTEM FOR TEACHER PREPARATION OR CONTINUED DEVELOPMENT

- More than 3,000 independent providers of initial teacher training
- No common specific curriculum for preparation for initial teaching
- A reliance on conventional academic credentials as the standard content knowledge
- No common standard of performance for entry to independent practice with (on) young people
FEATURES OF STRONG TRAINING FOR RESPONSIBLE INDEPENDENT PRACTICE

1. Clear specification of knowledge, skills, capabilities, and qualities of performance necessary for independent practice

2. Detailed developmental clinical training, progressing from observing to simulations to apprenticeship to supervised independent practice; including attention to role of practitioners in novices’ learning

3. Performance assessment of individual competence before allowing independent practice
WHAT SHOULD INITIAL TEACHER PREPARATION AND LICENSURE DO?

1. Make the **rights of young people and families** the central imperative
2. Focus on ensuring that beginning teachers are ready to care for the **academic, social, emotional, and physical safety** of young people
3. Provide assurance to families and to the public that the beginning professional has met the standards necessary to be given **initial responsibility for students’ learning**

In other words, ensure that the beginning teacher meets the standard of “safe to practice”
HIGH-LEVERAGE PRACTICES

- Explaining and modeling mathematical ideas and practices
- Leading a mathematics discussion
- Eliciting and interpreting students’ thinking
- Establishing norms and routines for classroom discourse and work
- Recognizing particular common patterns of student thinking and development
- Learning about students’ cultural, religious, family, intellectual, and personal experiences and resources for use in instruction
- Setting up and managing small group work
- Building respectful relationships with students
- Selecting and modifying tasks and texts for a specific learning goal
- Checking student understanding during and at the conclusion of lessons
- Providing oral and written feedback to students on their work
- Talking about a student with a parent or caregivers

1TeachingWorks and the University of Michigan School of Education
CONTENT KNOWLEDGE *FOR TEACHING*

- Knowing the content that the students are supposed to learn
- Knowing ways to unpack, represent, and make that content learnable
- Knowing how students think about the specific content
- Knowing ways to teach the specific content

(Ball, Thames, and Phelps, 2008, *JTE*)
“KNOWING” MATHEMATICS

Calculate:

\[
\frac{5}{6} \div \frac{1}{3}
\]
ANALYZING—AND “TALKING”—REPRESENTATIONS

Which of these can be used to represent $\frac{5}{6} \div \frac{1}{3}$? Explain with reference to all parts of the expression.
PRACTICING DEFIBRILLATION
PRACTICING A GUIDED READING LESSON
ASSESSING DIAGNOSTIC CAPABILITY

\[
\begin{array}{c}
1 \\
15 \\
29 \\
+12 \\
54 \\
1 \\
18 \\
29 \\
+17 \\
54
\end{array}
\]
The teaching intern:

1. prepares for an interaction with a standardized student about one piece of student work

2. interacts with the student to probes the standardized student’s thinking

A Standardized Student

Developed response guidelines focused on:

- what the student is thinking such as
  - uses a method not conventional in the U.S. (but that is standard in many European and South American countries)
  - applies the method correctly and has conceptual understanding of the procedure

- general orientations towards responses such as
  - talk about digits in columns in terms of the place value of the column (e.g., 14 ones)
  - give the least amount of information that is still responsive to the question

- responses to anticipated questions
ELICITING AND INTERPRETING
STUDENT THINKING

784
-3215
469

657
-276
427

Intern: I was looking at your work, and I was curious about what you were doing.
WHAT IS TEACHINGWORKS?

- A national organization housed at the University of Michigan School of Education
- Focused on the fundamental social justice and policy goal of ensuring that every child gets skillful teaching every year by building strong professional infrastructure for the training, development, and assessment of teaching practice
- Based on work done at the University of Michigan in our own programs and also in partnership with other programs and organizations

http://www.teachingworks.org
WHY CAN OUR APPROACH WORK?

- The fundamental elements have been developed and tested, and are ready to be scaled and further refined.
- The strategy is wired into the structure of the U.S. educational system, with state authority key.
- We are insiders to the enterprise, but are also known for breaking the mold.
OUR BIGGEST CHALLENGES

1. Timing and being able to move quickly enough in the next five years

2. Changing ideas about quality teaching and how to get it: Building an effective and deeply-penetrating education campaign
Great teachers aren’t born. They’re taught.
CREDITS

Image on slide 19:
“almost forbidden territory....” by Flickr user Esthr
Licensed under a Creative Commons Attribution-NonCommercial 2.0 Generic License
http://creativecommons.org/licenses/by-nc/2.0/deed.en

Image on slide 19:
“Marielle Carving Francinaldo's Ear” by Flickr user ReSurge International
Licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 2.0 Generic License
http://creativecommons.org/licenses/by-nc-nd/2.0/deed.en

Image on slide 26:
© 2009 Stuart Isett. www.isett.com. All rights reserved. Used with special permission.