SIMULATIONS OF STUDENT THINKING THAT ASSESS TEACHING SKILL AND KNOWLEDGE IN USE

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WHY DEVELOP SIMULATION ASSESSMENTS?

- The profession needs reliable ways to appraise teacher candidates' skills and knowledge
- Assessments must be useful for a variety of different purposes
- Limitations of prevailing approaches to assessments

SIMULATION ASSESSMENTS

A situation that represents a context of practice with enough fidelity to elicit authentic professional work.

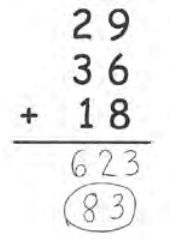
- Used in other professional fields (e.g., medicine, nursing, dentistry) as well as in most skilled occupations where skill, knowledge, judgment, and client safety are concerns
- Enable common appraisal of candidates' knowledge and skill in ways that control for many sources of variability that complicate assessment of practice

ELICITING AND INTERPRETING STUDENT THINKING

A core teaching practice: to find out what students know or understand, and how they are thinking/reasoning

- Establishing an environment in which a student is comfortable sharing his/her thinking
- Posing questions to get students to talk
- Listening to and hearing what students say
- Probing students' responses
- Developing an idea of what a student thinks
- Checking one's interpretation

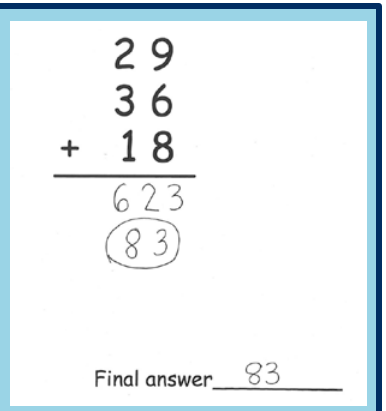
SETTING THE STAGE FOR ELICITING



The teacher candidate:

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

Your goal is to elicit and probe to find out what the "student" did to produce the answer as well as the way in which the student understands the steps that were performed.



Correct answer, alternative algorithm, degree of understanding is unclear

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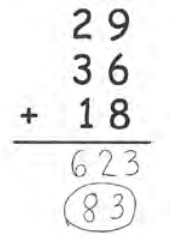
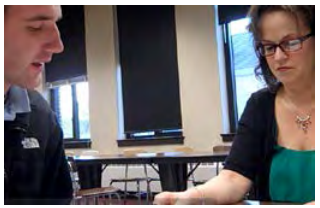
HOW IS EVIDENCE OF ELICITING SKILLS OBTAINED?



The teacher candidate:

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 an alternative algorithm (column addition), except the student is working from left to right
  - 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., 23 ones)
  - Give the least amount of information that is still responsive to the question
- Responses to anticipated questions

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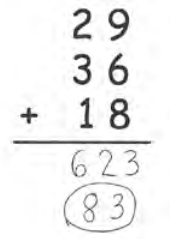
ELICITING A STUDENT'S THINKING

What is the teacher candidate doing to elicit this student's thinking?

ELICITING STUDENT THINKING



What can we notice about this teacher candidate's skill with eliciting student thinking?

Evaluate whether the teacher candidate:

- Launches the interactions with a question that is neutral, open, and focused on student thinking
- Elicits the specific steps of the student's process
- Elicits the student's understanding of the steps
- Attends to the students' ideas in follow-up questions
- Uses appropriate tone and manner

HOW IS EVIDENCE OF INTERPRETATION OBTAINED?

The teacher candidate:

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
3. **Responds to questions about her/his interpretation of the student's thinking, including predicting the student's response on a similar task**

Questions

a) Briefly describe what was learned about the student's thinking (process and understanding)

b) Predict how the student would solve a similar problem and his/her understanding of key mathematical ideas

AUTHENTICITY OF THE SIMULATION

- What is authentic about the simulation?
  - Student work is ambiguous
  - Interaction occurs in real time
- What does the inauthenticity afford?
  - Stabilizes the influence of mathematical topic on the ease/difficulty of eliciting and interpreting student thinking
  - Allow assessors to see skills under the same conditions
  - Focuses the assessment on the practice of eliciting and interpreting student thinking and removes the need to enact "enabling" practices

AFFORDANCES OF STANDARDIZED SIMULATION ASSESSMENTS

- Controlled context ensures that teacher candidates have an opportunity to demonstrate the practice
- Simulated student's thinking and ways of being can be tailored to the purposes of the assessment
- Assessment is efficient and not dependent on elementary school schedule
- Standardization allows for clear comparisons across a group of teacher candidates