THE TEACHING SKILLS THAT NOVICES BRING TO TEACHER EDUCATION: THE CASE OF ELICITING STUDENT THINKING

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AERA • San Antonio, TX • April 27, 2017

The research reported here was supported by the National Science Foundation, through a grant to the University of Michigan. The opinions, findings, and recommendations expressed are those of the authors and do not represent views of the National Science Foundation.
ORIENTING PROFESSIONAL PREPARATION TO OUR STUDENTS

- Teaching should be oriented to the prior knowledge and skills of learners, at any level or any context
- This is just as true of teacher education
- Knowing what teacher candidates already believe and what they are already inclined to do can help make professional education more effective
CONSIDERING ONE TEACHING PRACTICE:
ELICITING STUDENT THINKING

To find out what students know or understand, and how they are thinking/reasoning, a teacher must:

- Establish an environment in which a student is comfortable sharing his/her thinking
- Pose questions to get students to talk
- Listen to and hearing what students say
- Probe students’ responses
- Develop ideas about what a student thinks
- Check one’s interpretation
FOCUSING ON ELICITING FROM THE BEGINNING OF TEACHER EDUCATION

Early attention to eliciting and interpreting student thinking is crucial, because:

- People are likely to develop ways of doing this in everyday life
- Learning and attending to what young people think is foundational to teaching
- Many other teaching practices rely on being able to elicit and interpret learners’ thinking
USING STANDARDIZED SIMULATIONS TO ASSESS ELICITING

Simulations are approximations of practice that can be used for both assessing and supporting ongoing learning.

Simulations:
- Engage participants in authentic demands of practice
- Strategically hold still some elements of the practice-based situation
- Are common in many professional fields
- Can provide information that is difficult to access in the context of classroom practice
SETTING THE STAGE FOR ELICITING

The teacher candidate:

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

   \[
   \begin{array}{c}
   29 \\
   36 \\
   + 18 \\
   \hline
   623 \\
   \end{array}
   \]

   Final answer: \(83\)

   Correct answer, alternative algorithm, degree of understanding is unclear

   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.
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 probe 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
ELICITING A STUDENT’S THINKING
INITIAL SKILL IN ELICITING STUDENT THINKING

Context:

- Simulation assessment (47 teacher candidates)
- Data collected during the first week of the teacher education program

Analyzing the prevalence of eliciting moves:

- Eliciting components of the student’s process
- Probing the student’s understanding of the process
- Attending to the student’s ideas
- Deploying other moves that support learning about student thinking
PREVALENCE OF MOVES: ELICITING PROCESS

0% (no teacher candidates) 50% 100% (all teacher candidates)

- Eliciting where the 6 comes from (89%)
- Eliciting the sequence of the process (87%)
- Eliciting description of the combining (85%)
- Eliciting where the 23 comes from (79%)
PREVALENCE OF MOVES: ELICITING UNDERSTANDING

0% (no teacher candidates)
50%
100% (all teacher candidates)

- Probes why combining is necessary (68%)
- Probes the value of 623 (36%)
- Probes the equivalence of '23' and 2 tens and 3 ones (17%)
PREVALENCE OF ELICITING: DEPLOYING OTHER MOVES

- Posing a follow-up problem (15%)
- Encouraging writing (25%)
- Positioning the paper so that the student can see and participate (100%)
- Facing the student when asking a question (100%)
- Refraining from asking the student to use a different process (85%)
- Refraining from filling in the student’s process or understanding (62%)

0% (no preservice teachers)
50%
100% (all preservice teachers)
WHAT CAN BE LEARNED FROM THE SKILLS THAT NOVICES BRING?

1. Moves that require new learning ➔ Novices have much to learn about eliciting student thinking (e.g., asking the student to write, posing a follow up problem, and probing the student’s understanding)

2. Moves that can be built upon ➔ Novices bring relevant skills to teacher education which can be leveraged and built upon (e.g., facing student, asking process questions)

3. Moves that require unlearning ➔ Some of the skills brought to teacher preparation by novices may undermine to the work that teachers need to do (e.g., filling in student thinking or asking the student to use a different process)
QUESTIONS FOR FUTURE RESEARCH

- Is the empirical data is generalizable to other populations of teacher candidates? In what ways?
- Do the three categories generalize across different teaching practices and subject matters? If so, what are the implications for teacher education?
- What sense did the teacher candidates make of the student thinking that they elicited?