ASSESSMENT FOR INSTRUCTORS’ AND INTERNS’ LEARNING: PROGRESS IN LEADING MATHEMATICS DISCUSSIONS

Meghan Shaughnessy
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WHAT DO ASSESSMENTS OF TEACHING INTERNS’ CAPABILITIES NEED TO BE LIKE?

① Assess practice: actual skills and knowledge for doing teaching
② Provide information about teaching interns’ development and about instructional needs
③ Be useful to teaching interns
④ Use time efficiently and resources wisely
PROGRAM CONTEXT

- Practice-based program centered on:
  - high-leverage teaching practices
  - content knowledge for teaching
  - ethical obligations of teaching
- 9-week mathematics methods course
- Third semester of a four-semester program

See: http://www.soe.umich.edu/academics/bachelors_degree_programs/uete/
① ASSESS PRACTICE: ACTUAL SKILLS AND KNOWLEDGE FOR DOING TEACHING
A HIGH-LEVERAGE TEACHING PRACTICE: LEADING A DISCUSSION

In a whole-class discussion, the teacher and all of the students work on specific content together, using one another’s ideas as resources. The purposes of a discussion are to build collective knowledge and capability in relation to specific instructional goals and to allow students to practice listening, speaking, and interpreting. In instructionally productive discussions, the teacher and a wide range of students contribute orally, listen actively, and respond to and learn from others’ contributions. (TeachingWorks)
PARTS OF LEADING A PROBLEM-BASED MATHEMATICS DISCUSSION

- Setting up the mathematics problem
- Monitoring as students work independently on the problem
- Launching the discussion
- Orchestrating the discussion
- Concluding the discussion
LEARNING TO LEAD MATHEMATICS DISCUSSIONS

Initial experience:
Participating in a mathematics discussion as learners of mathematics

Making explicit discussion-leading practices
(e.g., setting up a mathematics task)

Analyzing and debriefing the mathematics discussion

Enacting a mathematics discussion (four opportunities)

Co-planning for a mathematics discussion
THE SET UP OF A MATHEMATICS PROBLEM

Components

- Build a shared understanding of what the problem is asking (without giving away the solutions or methods)
- Give directions to establish the work environment as needed, depending on routinized norms of the classroom

Features

- Succinct
- Clearly organized
- Use language that is likely to be accessible to students
- Task is publically posted
A SECOND GRADE MATHEMATICS TASK

How many different two-digit numbers can you make using the digits 2, 4, and 5?

Show all the two-digit numbers that you found.

How could a teacher set up this mathematics problem?
LEARNING TO LEAD MATHEMATICS DISCUSSIONS

Initial experience:
Participating in a mathematics discussion as learners of mathematics

Making explicit discussion-leading practices
(e.g., setting up a mathematics task)

Analyzing and debriefing the mathematics discussion

Opportunities for formative assessment

Enacting a mathematics discussion (four opportunities)

Co-planning for a mathematics discussion
② PROVIDE INFORMATION ABOUT TEACHING INTERNS’ DEVELOPMENT AND ABOUT INSTRUCTIONAL NEEDS
VIEWING FOCUS

What do you notice about the teaching intern’s use of the components and features of an effective set up?
TEACHING INTERN EXAMPLE

- Video

What do you notice about the teaching intern’s use of the components and features of an effective set up?
THE SET UP OF A MATHEMATICS PROBLEM

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INSTRUCTIONAL NEEDS OF TEACHING INTERNS: A FOCUS ON A COHORT OF INTERNS

SET UP OF A PROBLEM

Strengths

- Posting the task publically
- Asking students to explain what the problem is asking in their own words
- Identifying the conditions (or the rules) of the problem
- Checking for understanding by exploring one solution when multiple solutions exist

Challenges

- Striking the balance between “explaining everything that might be tricky” and “leaving space for students to explore challenging parts of the problem”
- Being succinct
- Capitalizing on the unpacking of the conditions of a problem during the orchestration of the discussion
③ BE USEFUL TO TEACHING INTERNS
THEORY OF WHAT MAKES ASSESSMENTS USEFUL TO TEACHING INTERNS

- Feedback on specific moments
- Feedback on overall performance
- Opportunities to try again
FEEDBACK ON SPECIFIC MOMENTS

- **Questions:** “I wondered …”
- **Strengths:** “Having another student restate the idea that Jason shared was useful given the importance of this idea to work on the task.”
- **Suggestions:** “This question would have been clearer if you had worded it in this way - …”
- **Notes:** “This pattern of student thinking is common.”
FEEDBACK ON SPECIFIC MOMENTS: USING EDTHENA

DESCRIPTION
Problem:
Gina has 24 feet of fence.
She wants to make the largest rectangular area possible for her rabbit to play in.
What length should she make each side of the rabbit pen?
Show all your work and explain how you found the largest area.
Answer: All four sides should be 6 feet

End-of-discussion-check:
Problem: Fred has 12 meters of rope.
He wants to make the largest rectangular area possible to rope off his garden.
What length should he make each side of the garden?
Show all your work and explain how you found the largest area.
Answer: All four sides should be 3 meters

GRADE 3

SUBJECT
Math

UPLOAD DATE December 04, 2013

FILES AND LINKS
- Discussion 4
- Discussion 4 Problems.docx
- Discussion 4 Analysis

Edthena- https://app.edthena.com
FEEDBACK ON OVERALL PERFORMANCE

Threshold statements keyed to particular components of the work of leading a discussion

Feedback on Professional Practice Piece: Leading a Discussion #2

Set up of the task
The initial set up developed shared understanding of the task, conveyed expectations to students, and prepared students to work independently on the task.

☐ Meets expectations  ☐ Does not meet expectations
OPPORTUNITIES TO TRY AGAIN

I have pennies, nickels, and dimes in my pocket. If I pull out two coins, what amounts of money might I have?

Show all the amounts that you found and how you found them.
④ USE TIME EFFICIENTLY AND RESOURCES WISELY
USING TIME EFFICIENTLY AND RESOURCES WISELY

- **Teaching intern time:**
  - Develop ways of analyzing practice that do not over-privilege written reflection
  - Provide frames for thinking about performance

- **Course instructor time:**
  - Provide feedback strategically: Not every opportunity to teach requires feedback from course instructors
  - Use of threshold statements for overall performance
QUESTIONS AND CHALLENGES
CHALLENGES

① Assess entry-level practice: actual skills and knowledge for doing teaching: Maintaining the focus on the focal teaching practice(s)

② Provide information about teaching interns’ development and about instructional needs: Accounting for differences in mathematics problems (e.g., is one problem harder to set up than another?)

③ Be useful to teaching interns: Ensuring that the overall picture of the performance is seen

④ Use time efficiently and resources wisely: Determining what to comment on at particular points