STANDARDIZED ASSESSMENTS OF DISCUSSION LEADING PRACTICE: ARE THEY VALID MEASURES?

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*Psychology of Mathematics Education North America • East Lansing, MI*

Acknowledging our colleagues:
- TeachingWorks Assessment Development Group
- Special thanks to some specific people: Deborah Loewenberg Ball, Michaela Krug O’Neill, Meghan Shaughnessy, & Sabrina Salazar

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PROBLEM STATEMENT

- Increasing focus on preparing teacher candidates to develop skill with core practices of teaching
- Need ways to assess teacher candidate’s skills with enactment of practice
- Prevailing approaches to assessment often do not provide adequate evidence of teacher candidates’ skills with particular practices
- Many factors beyond sheer skill influence novices’ enactment of specific practices

How do novice teachers’ discussion leading practices in standardized assessments correspond with typical classroom practice?
WHOLE CLASS DISCUSSION

- A period of relatively sustained dialogue among the teacher and multiple members of the class
- In a whole-class discussion, participants respond to and use one another’s ideas to develop ideas about specific content

TeachingWorks, 2015
DECOMPOSING THE WORK OF LEADING A WHOLE CLASS DISCUSSION

- Practices for orchestrating discussions (Smith & Stein, 2011)
- Talk moves (Chapin, O’Connor, & Anderson, 2013)
- Decomposing practice for novice learning (Boerst et al., 2011)

<table>
<thead>
<tr>
<th>Standardized</th>
<th>Assessment</th>
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<tr>
<td><strong>Discussion Enabling</strong></td>
<td><strong>Discussion Leading</strong></td>
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<td>Anticipating student thinking</td>
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<td>Concluding</td>
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<td>Recording</td>
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ELEMENARY ASSESSMENT

Task:
“Make number sentences for 10”

Goals:
- elicit several solutions to the problem
- have students explain why they are or are not solutions
- notice similarities and differences among the solutions
Launch and conclusion
- Launching and concluding the discussion
  - Has attention of all students before launching
  - Prompt efficiently engage student in the mathematical work
  - Prompt directs attention toward the mathematics that is intended for the discussion
  - Makes a closing statement that indicates the conclusion of the discussion
  - Closing supports students in remembering or making sense of at least one key idea from the discussion
  - Closing takes stock of the discussion

Orchestrate
- Eliciting multiple responses
  - Multiple solutions, strategies, or ideas were elicited
  - A range of student understanding or method was represented
  - Multiple students shared responses
- Probing students’ thinking in relation to the mathematical goals
  - Questions were posed to get students to explain and elaborate their thinking about processes
  - Questions were posed to get students to explain and elaborate their understanding of key mathematical ideas
  - Responses were followed up on to make sure students’ thinking about the mathematics is clear
  - Support was given for students to complete their contributions or clarify their thinking
- Directing students to the contributions of peers
  - Students are prompted to invited to talk to the whole class
  - The teacher poses questions to students about others’ ideas and contributions several times during the discussion
  - Students are asked to comment on, add to, or critique another student’s ideas or do so without prompting
  - The talking of the class is supported and modeled by success that seek all students to respond to another’s work (e.g., agree/disagree, write/say)
  - Students are encouraged to attend, listen and respond in order to maintain productive and focused interaction
- Making contributions to the discussion
  - The teacher uses moves such as revoicing, summarizing, and highlighting to keep the discussion on track
  - The teacher ensures that rationale and relevant analysis is part of the discussion and contributions are valued
  - Mathematical contributions made by the teacher enrich the core ideas of the mathematical discussion and keep the discussion focused on the learning targets

Recording
- Recording and representing content
  - Teacher records of student ideas are traceable to the students’ contributions
  - Attends to the accuracy of records and representations
  - Teacher recording is clear, organized and visible in the class
  - Recordings support student understanding and participation
## Launch and conclusion
- Launching and concluding the discussion

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- Makes a closing statement that indicates the conclusion of the discussion.
- Closing takes stock of the discussion.

## Orchestrate
### Eliciting multiple responses
- Multiplecollector, strategy, or idea w reassessed
- A range of student understanding or methods w represented
- Multiple students shared responses

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### Probing students’ thinking in relation to the mathematical goals
- Questions were used to get students to explain and elaborate on their thinking about processes.
- Questions were used to get students to explain and elaborate on their understanding of key mathematical ideas.
- Responses were followed up on to make sure students were thinking about the mathematics involved.
- Support was given for students to complete their contributions or clarify their thinking.

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### Orienting students to the contributions of peers
- Students are prompted as needed to talk to the whole class.
- The teacher posed questions to students about other’s ideas and contributions several times during the discussion.
- Students are asked to connect or relate another student’s idea or idea to their own.
- The listening of the class is supported as needed by moves that ask all students to respond to another’s work (e.g., think/pair/share, written response).
- Students are encouraged to attend, listen, and respond in order to maintain productive and focused interaction.

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### Recording
- Recording and representing content

<table>
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<th>Present</th>
<th>Problem (area below)</th>
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- Teacher records of student ideas are traceable to the student’s contribution.
- Attend to the accuracy of records and representations.
- Teacher recording is clear, organized, and visible in the class.
- Recordings support student understanding and participation.

## Recording
SCORING TOOL

Orienting students to the contributions of peers

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RESEARCH QUESTION

How do novice teachers’ discussion leading practices in standardized assessments correspond with typical classroom practice?
METHODS

- Participants: 9 first-year elementary teachers
- Data sources
  - Video records of discussions in regular classroom practice
  - Video records of discussion assessments
  - Background surveys
METHODS

- Research team independently scored videos and resolved disagreements through discussion
- Subset was coded by trained rater (85% agreement)
- Individual scores were compared for consistency at the level of discussion leading practices and techniques

<table>
<thead>
<tr>
<th>CODE</th>
<th>CODE DESCRIPTION</th>
<th>WHAT THIS CODE IS NOT</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Closing Statement</td>
<td>Makes a closing statement that indicates the conclusion of the discussion</td>
<td>The code is not solely a transition to another activity. This may take the form of a question such as “what is the focus of our discussion?”</td>
<td>It might not be explicitly “now that we are done...”, it could be “what did we learn today?”; “So, it seems we’re all in agreement about...” “We are done with this discussion for today. We are going to continue tomorrow, but we are going to stop for now” This might be a transitional sentence into a supportive closing</td>
</tr>
<tr>
<td>Supportive Closing</td>
<td>Closing supports students in remembering or making sense of at least one key mathematical topic or practice from the discussion</td>
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<td>This must be related to the mathematics content (topics or practices) T can talk about mathematical ideas “there are infinitely many solutions” or practices “we had some nice claims, solutions, presented today”</td>
</tr>
<tr>
<td>Takes stock</td>
<td>Closing takes stock of where the class is in the discussion</td>
<td>The code is not just making a statement about what the teacher wants students to walk away with when it is not reflective of what happened in the discussion. This is not just a listing of objectives. This should not be so vague that it applies to any class (“nice job everyone”), there should be specifics about what just happened.</td>
<td>T talks about what happened in the discussion e.g. “we found a lot of different ways to solve this problem and thought about similarities” T asks the class some things that were discussed or learned. T comments on particular practices e.g. “you did a great listening to each other”</td>
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CORRESPONDENCE BETWEEN TYPICAL PRACTICE AND ASSESSMENT

Comparison of points earned on assessment vs. observation

- Fewer points on assessment
- Same points on both measures
- More points on assessment

Discussion leading practice

- Launch
- Eliciting
- Probing
- Orienting
- Contributing
- Concluding

Number of teachers
CONSIDERING THE CASE OF ORIENTING STUDENT THINKING

Orienting Points Earned: Assessment vs. Observation

- T23
- T05
- T06
- T08
- T33
- T02
- T25
- T20
- T04

Observation  Assessment
CONSIDERING THE CASE OF ORIENTING STUDENT THINKING

Orienting Points Earned: Assessment vs. Observation

- Observation NA
- Observation Present
- Assessment NA
- Assessment Present

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DISCUSSION

- Limitations
  - Sample size
  - Number of observations

- Implications
  - Assessment can highlight teachers’ potential

- Research recommendation
  - Investigate the ways in which scaffolds provided in the assessment impact performance and support teachers
RELATED STUDY

Sarah Kate Selling, Meghan Shaughnessy, Amber Willis, Nicole Garcia, Michaela Krug O’Neill, & Deborah Loewenberg Ball

Standardized assessments of beginning teachers’ discussion leading practice: Is it possible and what can we learn?

Saturday, November 7, 2015 8:30 a.m. in the auditorium
THANK YOU!

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Slides will be available on the TeachingWorks website:
http://www.teachingworks.org/publications_presentations