Instructional Routines: Professional Learning That Supports Equitable Practices

Jennie Beltramini
Jody Guarino
Jennie Beltramini  
Mathematics Specialist  
Professional Learning Team  
Student Achievement Partners

Jody Guarino  
Math Coordinator  
Orange County Department of Education, California
Session Goals

1. Investigate a professional learning model in which teacher and student learning are developed within the actual work of teaching

2. Learn about the role of instructional routines in teacher and student learning

3. Understand equitable practices and how they can be developed within professional learning situated in classrooms
Professional Learning Model
Fraction Lab Professional Learning

Summer Fraction Lab (7 days, 5 including students for half-days)

- Southern California elementary school
- Teachers from several Title 1 schools
- Enrollment of 465 students
- Kindergarten through sixth grade
- 76% Latinx
- 77% socioeconomically disadvantaged
- 44% English learners
- 10% students with disabilities

Ongoing learning throughout the 2018-2020 school year
Goals for the Professional Learning

Development of Beliefs
Development of Professional Vision
Development of Knowledge
Content Knowledge
Pedagogical Knowledge
Knowledge of Student Thinking
Learning from Teaching
Why fractions?

Even students’ overall IQ, family income, and family education do not predict future algebra achievement as strongly as does fraction knowledge (Siegler et al., 2012).
The Professional Learning Model

Teach:
1. Instructional routine
2. Task
3. Instructional routine
4. Task
Core Practices of Responsive Equitable Teaching

- ELICITING AND RESPONDING TO STUDENT THINKING
- ORIENTING STUDENTS TO EACH OTHERS’ IDEAS AND TO THE MATHEMATICAL GOAL
- POSITIONING STUDENTS COMPETENTLY
- TEACHING TOWARD AN INSTRUCTIONAL GOAL
Content Learning

1. Reading the standards and thinking about the big ideas of each grade level in 3-5 fractions.

2. Reading excerpts from the 3-5 NF Progression Document and pulling out the big ideas of the grade levels.

3. Engaging in mathematics as learners: completing fraction math tasks from grades 3 to 5, with discussion on the mathematical concepts within the tasks, mapping back to the standards and Progressions.
Plan for Teaching

- Do the math
- Partner share/anticipate student strategies
- Unpack the mathematical goal
  - Where does it fit within the progression?
  - What is prerequisite knowledge?
- Plan for launch and “in-action” elements
Teach
Reflect

Core Practices of Responsive Teaching

Eliciting and Responding to Student Thinking

Orienting Students to Each Others’ Ideas and to the Mathematical Goal

Positioning Students Competently

Teaching Toward an Instructional Goal
Having the opportunity to hypothetically plan lessons but then see the outcome of the lessons was powerful. The process of anticipating their responses and then seeing their strategies was wonderful.

The students provided us with the ability to immediately practice what we learned and have feedback.

It was crucial to have the students as part of this training so that we could see how they solved the problems. I think what we learned from the students will stick with us so much more than if it had just been a lecture on what concepts students struggle with.

I felt the most growth in content knowledge. I enjoyed beginning this training by mapping the standards of all the grade levels where fractions are introduced and building my knowledge of the content from these. The tasks that we administered showed me the different ways of exposing students to fractions in varying ways and thinking about the relation with the progression of the standards.
Instructional Routines
Choral Counting as an Instructional Activity

Experience the activity as a learner

Observe and unpack the activity with K-8 students
Choral Counting

Count by $\frac{1}{3}$. Start at $\frac{1}{3}$. 
Discussing the Activity

What did you notice?

What do you wonder?
Choral Counting as an Instructional Activity

For student learning...

For teacher learning...

Considering this lens...
• What are the opportunities for student learning within the activity?
• What are the opportunities for teacher learning within the activity?
Discussing the Activity

Reflect on your experience as a “learner” participating in choral counting

- Use the core practices to consider both teacher and learner actions.
- Share in your small groups/pairs what you noticed across the 4 core practices:
  - Setting and maintaining expectations for student participation... *what does it mean to participate?*
  - Eliciting and responding to students
  - Orienting students to each other
  - Orienting students to the content
Teacher Moves in Choral Counting

- Organize written counting sequence
- Elicit strategies for counting
- Ask “what did you notice about the numbers?”
- Represent student contributions
- Follow up on student ideas

Source: Angela Chan Turrou, UCLA (2009 CGI Conference, San Diego)
Revisiting the Core Practices

### Choral Counting Videos: Practices for Ambitious Teaching

<table>
<thead>
<tr>
<th>Core Practice</th>
<th>Teacher Action</th>
<th>Students’ Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eliciting and responding to students: asking questions and then considering what you do with students’ responses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orienting students to each other: supporting students to participate in equitable ways with peers and learn from public discourse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orienting students to the content: supporting students to notice the intellectually rich and rigorous work in content</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From: University of Washington Accelerated Certification for Teachers: U-ACT Program. © 2014 University of Washington. For noncommercial use only. For commercial use please contact license@uw.edu. For all other information contact TEDDinfo@uw.edu.

---

**ELICITING AND RESPONDING TO STUDENT THINKING**

**ORIENTING STUDENTS TO EACH OTHERS’ IDEAS AND TO THE MATHEMATICAL GOAL**

**POSITIONING STUDENTS COMPETENTLY**

**TEACHING TOWARD AN INSTRUCTIONAL GOAL**
Dropping into a Classroom

Choral Counting Videos: Practices for Ambitious Teaching

<table>
<thead>
<tr>
<th>Core Practice</th>
<th>Teacher Action</th>
<th>Students’ Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choral counting</td>
<td>waiter students to work together</td>
<td>support students’ understanding, ask questions for clarification, and then have public discussion</td>
</tr>
<tr>
<td>Choral counting</td>
<td>start the counting practice with a specific number in context</td>
<td>listen to the teacher, ask questions, and then practice in small groups</td>
</tr>
</tbody>
</table>

From University of Washington, Center for Advancement of Teaching and Learning (CAST). For more information, contact CAST through the CAST website.
Unpacking the Activity

1. What is the mathematical content that students are working on in this task? How is this task allowing students to share multiple mathematical ideas and/or provide a variety of access points?

2. How does the teacher use representations to make students’ mathematical thinking more accessible and public?

3. How are the teacher moves and the students’ participation building productive norms for mathematical thinking?

4. How does the teacher orient students to mathematical ideas and/or to each other’s thinking?
Our Process

Plan

Rehearse

Enact

Reflect
Planning

What is important to consider in planning a choral count?

- What was the teacher doing?
- How did learners participate?

Using the “Say Something” protocol, look at each section of the planning template. Pause after each section and “say something” to a partner. How do these steps fit in with what you noticed?
Planning

What is the mathematical goal?
What will you count by? What number will you start with?
How will you record the count?
When will you pause and elicit student thinking? What question(s) will you pose?
What mathematical ideas will you push on?

<table>
<thead>
<tr>
<th>Count by ___ from ___</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematical Goal:</td>
</tr>
<tr>
<td>Focus of Teaching Practice:</td>
</tr>
<tr>
<td>Record of Count and Patterns:</td>
</tr>
<tr>
<td>Planned pauses and questions to pose:</td>
</tr>
<tr>
<td>How will the task be launched:</td>
</tr>
<tr>
<td>When will the count stop?:</td>
</tr>
<tr>
<td>Patterns and the mathematical idea to push on (math goal). Questions to pose:</td>
</tr>
</tbody>
</table>
Rehearsal

Enact your choral count.

Role of teacher: lead us in the task as if we were students.

Role of students: engage in the task as students would.
Rehearsal Debrief

Teacher perspectives
Students perspectives

Teacher and teaching team reflection on feedback
Enactment
Reflection

1. What goals did you have for this specific choral counting task? How did these play out in your enactment?
2. What student understandings surfaced during the count?
3. What ideas do you have for future choral enactments with these students?
Connecting to equitable instruction
“Opportunity to learn remains one of the best predictors of student learning (NRC, 2001). Differentials in learning outcomes therefore are not a result of inclusion in any demographic group, but rather are significantly a function of disparities in opportunities that different groups of learners have with respect to:

- access to grade-level (or more advanced) curriculum,
- teacher expectations for students and beliefs about their potential for success,
- exposure to effective or culturally relevant instructional strategies,
- and the instructional supports provided for students.”

Connections to Core Practices

• Access to grade-level (or more advanced) curriculum
• Teacher expectations for students and beliefs about their potential for success
• Exposure to effective or culturally relevant instructional strategies,
• Instructional supports provided for students
Teacher Quotes: *How are you thinking differently about your teaching practice? What part of this experience contributed to that change in thinking?*

The way in which I structure my lessons to position students competently. I loved watching the way that students grew when they were given opportunities to share their great ideas.

I’m going to try to shift my teaching practices in math away from direct instruction and into process that is more centered on student thinking and inquiry.

I plan to use the learning norms to promote equity in learning. Accepting student thinking and understanding as it comes naturally and orienting their learning to each other and the learning goals. I will refine my teaching practice by eliciting student understanding by posing questions and accepting their ideas as a pathway to their personal thinking.
Continued Learning for All
Continued Learning - Teacher Learning Community

Teachers must engage in sustained PD with the same colleagues over time - Wei, 2009
Using Artifacts to Learn from Teaching

Analyzing Transcripts

Where in the transcript did the teacher...
- Elicit and respond to student reasoning
- Orient students to each others’ ideas and to the mathematical goal
- Position students competently

What did you notice?

What is important to keep in mind as you plan your next choral count?
Using Artifacts to Learn from Teaching

Video Club (analyzing the teaching of someone else)

- What mathematical ideas could have been pressed?
- What questions would engage students in thinking about those ideas?
- If the discussion was revisited, what would you do next?
Using Artifacts to Learn from Teaching

Video Club (analyzing my own teaching)

- Teachers video record lessons
- Teacher identifies a particular part of the clip to share
- Teacher frames the clip (what happened before the point we’re about to watch)
- Teacher shares lens for noticing
- Group watches clip and discusses lens

When colleagues de-privatize problems of practice and reflect together on student learning, they are more likely to sustain their focus on improvement and show instructional growth. -Horn, Kane & Garner, 2018
How this work has been built upon within the district...

Design of elementary mathematics professional learning

- Multi-year (carefully attending to duration)
- Pedagogies of investigation and enactment
- Attend to development of beliefs, content and pedagogical knowledge, knowledge of student thinking, learning from teaching
- Teacher learning communities intentional and part of professional learning design
- Developing learning systems
Connect and Reflect
Considering the affordances of instructional routines in supporting student learning and teacher learning, how might you use instructional routines in your setting?
Thank you!

Jennie Beltramini
jbeltramini@studentsachieve.net
@JennieBeltro

Jody Guarino
jguarino@ocde.us
@jody_guarino