Workshop Sessions 2017.03.16.0330.Chu.Perry

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Talk Title:

Workshop Session 2a: Observing for equitable opportunities to Participate in Mathematics Lessons, Activities, and Interactions.

Date:	03/16/2017	**Time**:	03:30 - 04:30	pm

Materials:

- Presentation slides (pdf)
- Detailed notes from notetaker (pdf)

List 6-12 key words for the talk:

Equity, Quality instruction, observation, interactions

Please summarize the lecture in 5 or fewer sentences:

WestEd discussed several different projects that is getting at defining quality instruction. The first was Quality Teaching for English Learners (QTEL) initiative which provides discipline-based, whole-school professional development integrated with instructional coaching for teachers. The second was Math in Common Initiative with 10 districts up and down the state of California and two partners to help them think about how to support Common Core implementation in mathematics. Presentation included video and group discussion.

Observing for Equitable Opportunities to Participate in Mathematics Lessons, Activities, and Interactions

Haiwen Chu and Rebecca Perry

March 2017

MATH IN COMMON®

QUALITY TEACHING® for English Learners

WestEd®

I. Two Projects – Common Purpose, Different Levels

Observations to improve mathematics lessons via research, evaluation, and coaching.

Three questions frame this presentation:

1. For ***what*** are we observing?
2. At what scales—***where and when***—are we observing?
3. ***How*** can observations influence practice?

Quality Teaching for English Learners

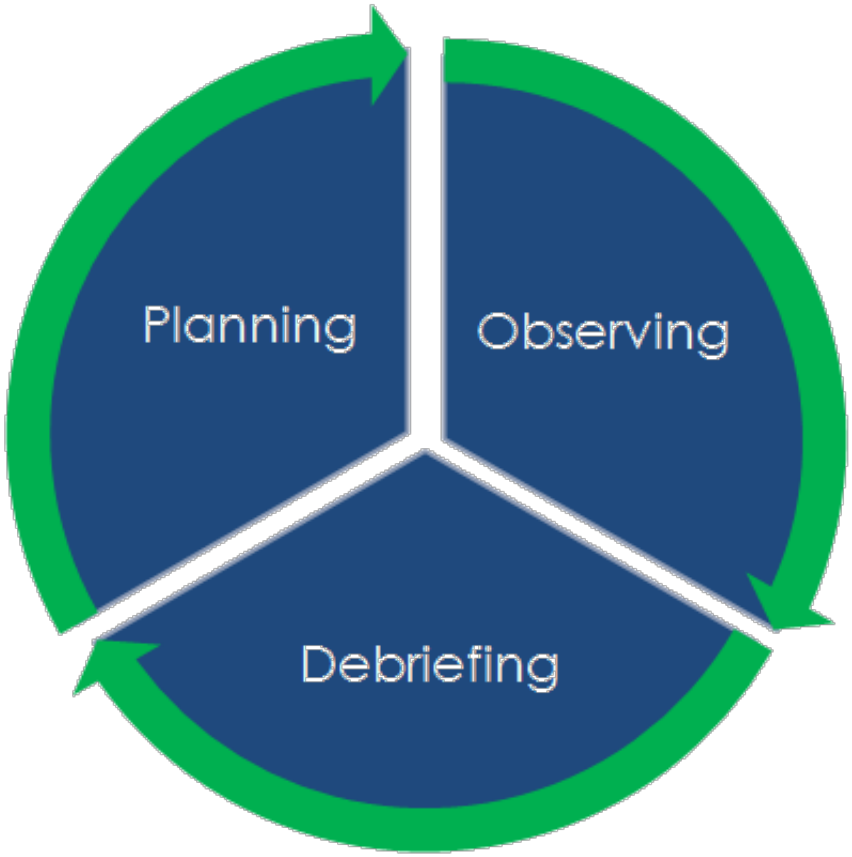
Discipline-based, whole-school professional development integrated with instructional coaching.

Setting: Elementary school in Pacific Northwest with six teachers in grades 3-5, one ESL specialist, and two mathematics coaches

WHAT: Principles of Quality Teaching for English Learners

- Sustain ***Academic Rigor***
- Engage in ***Quality Interactions***
- Maintain a ***Language Focus***
- Balance ***High Challenge, High Support***
- Provide ***Quality Curriculum***

HOW: Instructional Coaching



WHERE & WHEN: Planning Instruction at Multiple Scales

Unit

Lesson

Moment

Task

Interaction

Three Moments Architecture

Scaffolding Tasks

In contrast to exercises or drills, *tasks* have several critical features:

- A task is primarily focused on meaning, rather than grammatical form or linguistic display.
- A task requires both conceptual and linguistic processes to complete.
- A task has a clearly defined communicative outcome.

QTEL Principle: Quality Interactions

Sustained and Reciprocal Talk

- Talk is sustained and builds on ideas
- Not scripted or dominated by one party

Co-constructed Knowledge Mediated by Language

- Talk is about the subject matter
- Talk encourages reasoning, applying ideas, arguing, generalizing, and posing questions

Walkthrough or Observation Protocol

QUALITYTEACHING® for English Learners

Walkthrough Protocol

Room: **Class:**

Criteria	Indicators	Evidence	
		Teacher	Students
Students engage in deep, grade appropriate disciplinary work.	☐ Class activities target a central idea of the discipline at the appropriate grade level ☐ Students are engaged in activities that ask them to connect ideas (synthesize, generalize, explain, hypothesize) as they discuss disciplinary concepts ☐ Texts and materials used in the lesson are challenging		
Students engage in quality interactions around disciplinary content with other students and with the teacher.	☐ Most students participate in sustained verbal interactions about disciplinary ideas with other students and with the teacher ☐ Student responses to teacher or peer questions are elaborated, using multiple utterances to make complex points ☐ Teacher questions are open-ended and engage students in higher order thinking		
Classroom environment and activities indicate a language focus.	☐ Explicit examples of language use or formulaic expressions are displayed or provided for students to complete disciplinary activities ☐ Most students practice use of disciplinary language ☐ The teacher amplifies communications by providing varied examples, using kinesics, metaphors, elaborations		

QUALITYTEACHING for English Learners®

WestEd

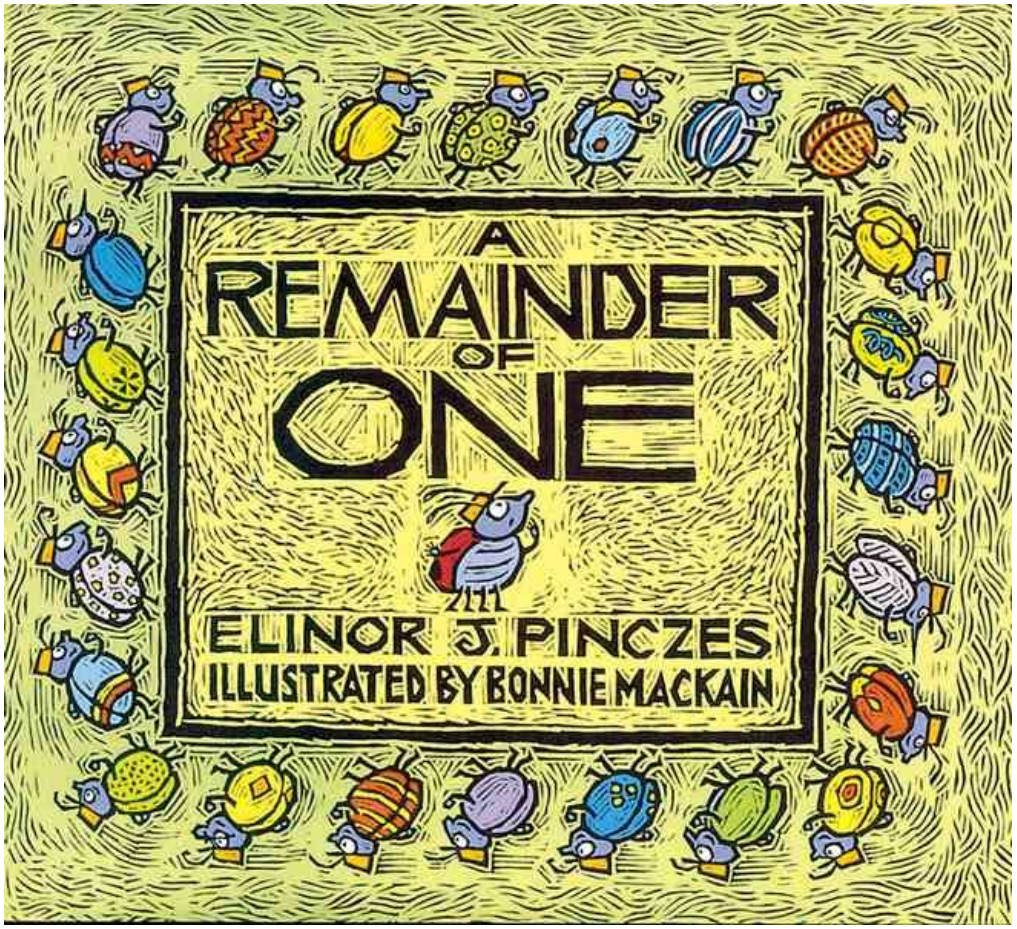
Criteria	Indicators
Students engage in deep, grade appropriate disciplinary work. ***Academic Rigor***	☐ Class activities target a central idea of the discipline at the appropriate grade level ☐ Students are engaged in activities that ask them to connect ideas (synthesize, generalize, explain, hypothesize) as they discuss disciplinary concepts ☐ Texts and materials used in the lesson are challenging
Students engage in quality interactions around disciplinary content with other students and with the teacher. ***Quality Interactions***	☐ Most students participate in sustained verbal interactions about disciplinary ideas with other students and with the teacher ☐ Student responses to teacher or peer questions are elaborated, using multiple utterances to make complex points ☐ Teacher questions are open-ended and engage students in higher order thinking
Classroom environment and activities indicate a language focus. ***Language Focus***	☐ Explicit examples of language use or formulaic expressions are displayed or provided for students to complete disciplinary activities ☐ Most students practice use of disciplinary language ☐ The teacher amplifies communications by providing varied examples, using kinesics, metaphors, elaborations

Peer Interactions within Tasks

To guide teacher's pedagogical reasoning about interactions, we provide a taxonomy:

- Information gap
- Opinion gap
- Antisymmetric/Reciprocal
- Linking
- Jigsaw

Narrative Context as Setting for Developing Models



Reading in Four Voices

There are four ***styles*** of text:

Plain

Bold

Underlined

Italic

You will work in a group of four to read the text out loud. You will choose one of these styles, which will signal when it is your turn to read.

Reading in Four Voices

All 28 soldiers marched past the bug crowd,
nervously hoping they'd make their queen proud.
The troop had divided by six for the parade;
But there was a problem with the groups they made.
The royal head shook. "**It's worse than before!**
Instead of three left over, now there are four!"
"I'm sorry Privates," said Joe's Sergeant Steven.
"**If you four stand down,** *then the troop will look even."*
The six lines of four marched off **as the sun shined,**
while sad Joe and three others had to stay behind.
It wasn't much fun **for Joe and three bugs more**
to feel so left out—*a remainder of four.*

Student 2:	[reading] "...now there are four!"
Student 1:	So there's six with a remainder of 4.
Student 2:	There's 4 left over.
Student 2:	This is 6 by 5.
Student 1:	But it's 28 soldiers?
Student 2:	There's four left over. That's what the remainder is for.
Student 2:	How much are we doing on each side?
Student 1:	This is too much.
Student 1:	I think it meant 6 rows.
Student 2	[counting]
Student 1:	But there's 28 soldiers.
Student 1:	Let's read it again.
Student 1:	This was 25.
Student 1:	It says six lines of four.
Student 2:	What do you mean?
Student 1:	Six lines of 4.
Student 2:	[Tracing vertically six lines]
Student 2:	6 times 4 is only 24 plus remainder
Student 3:	So 4 lines of 6, right?
Student 2:	6 lines of 4. There's six lines but each of them has 4.

Student Math Journal

NAME _____

TITLE _____

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28

7 x 4 = 28

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28

Student Math Journal

NAME _____ DATE _____

TITLE _____

28

NOR

4 x 7 = 28

7 x 4 = 28

RO

1	14	15	28
2	13	16	27
3	12	17	26
4	11	18	25
5	10	19	24
6	9	20	23
7	8	21	22

Challenges and Possibilities

The discipline of observation

Focus on rigor and coherence

Putting language to work

Overview: The Math in Common Initiative - 2013-2018

District participants:

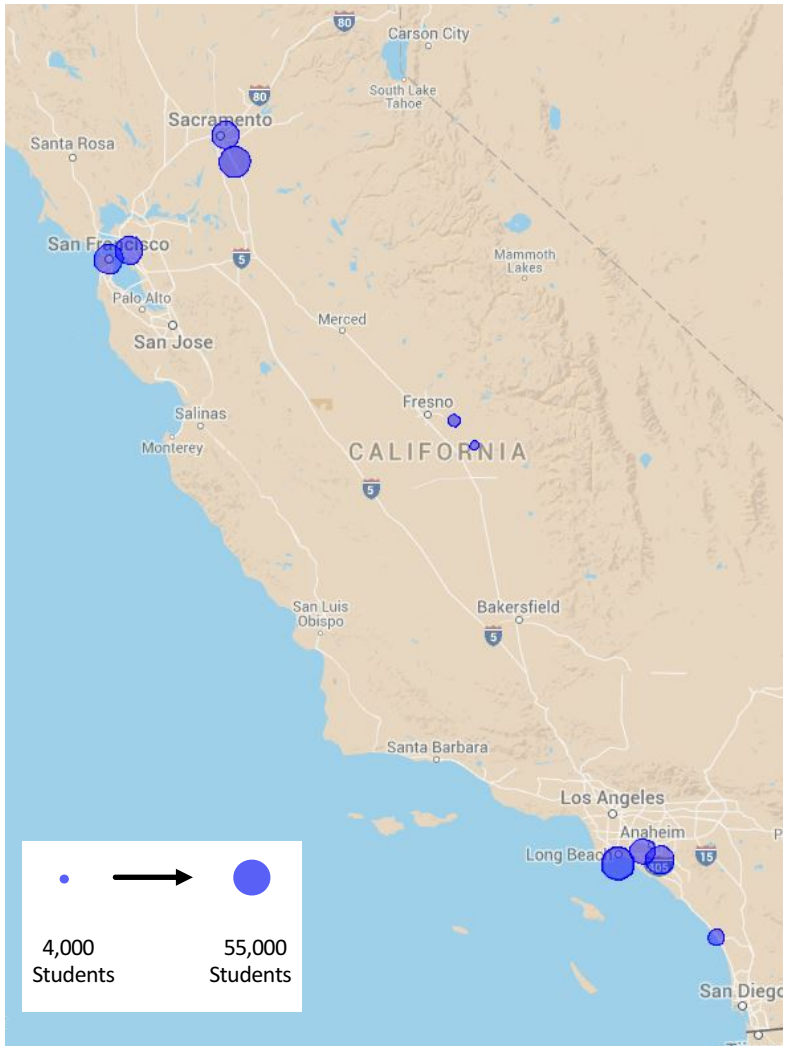
- 10 CA unified districts focused on CCSS-M implementation in K-8

3 continuous improvement partners:

- Funding by S.D. Bechtel, Jr. Foundation
- CA Education Partners convenes community of practice.
- WestEd serves as developmental evaluator and technical assistant provider.

Goals:

- Accelerate CCSS-M implementation
- Identify promising practices/lessons learned



Observation Process – Teachers' Instructional Shifts

- Sample: Each district - 6 volunteer teachers, fall and spring
- Full mathematics lessons, regardless of length [adaptation of MQI process]
- Teams of two MQI-certified observers*
- 8 ratings for each lesson

5 - MQI [Richness of The Mathematics; Common Core… Practices]

Linking between representations
Multiple procedures or solution methods
Mathematical sense-making
Students provide explanations
Students' mathematical reasoning

3 - TRU *

The mathematics
Access to mathematical content
Agency, authority, identity

- ***TRU added in part to align with district observation tools.***
- ***District representatives asked to observe alongside us using their own observation systems.***

Average MIC ratings, 2015-2016

Linking between representations

Found more often in 2016

Spring 2015, “not present” 53% of lessons

Spring 2016, “not present” 36% of lessons

Sense-making, student explanations, math reasoning

High rank not uncommon – MIC districts may focus here with CCSS implementation

Fall 2015 and Spring 2016, rated “high” in ~30% of lessons

The mathematics

Most likely TRU to be rated “3/Expert”

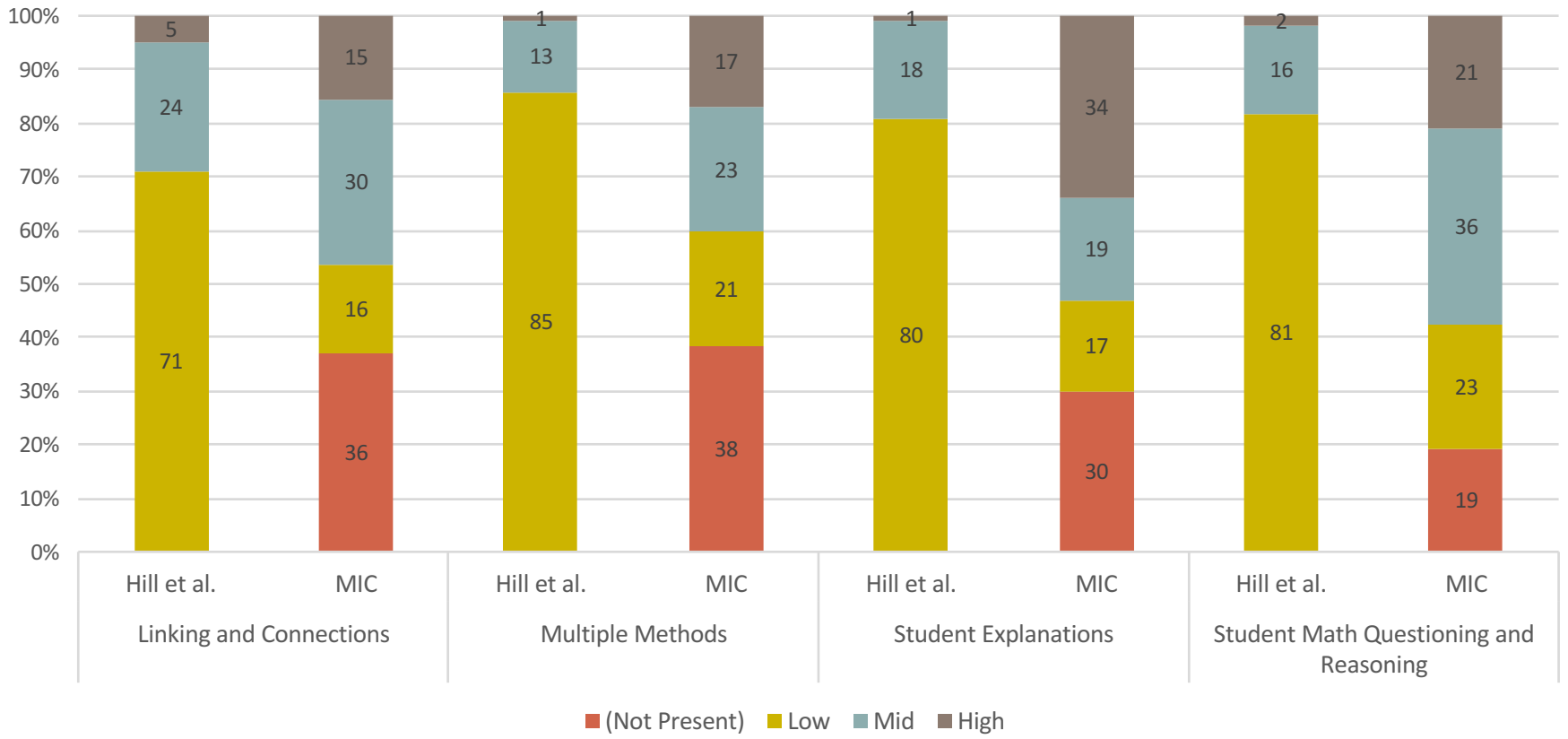
Fall 2015 and Spring 2016, rated “3/Expert” in 30% of lessons

Agency, authority, and identity

Most likely TRU to be rated “1/Novice”

Fall 2015 and Spring 2016, rated “1/Novice” in 22-23% of lessons

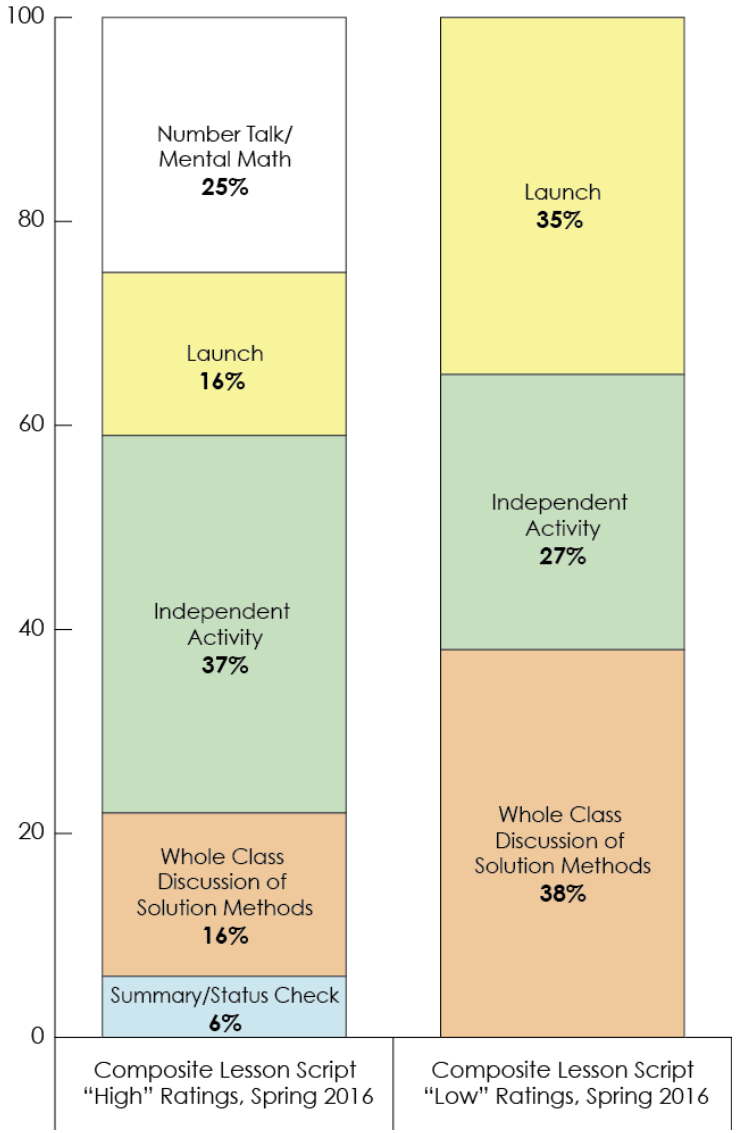
Percentage of Segments or Lessons at Each Score Level on MQI Elements



Hill, Litke, & Lynch, forthcoming: 13,166 lesson segments (7.5 min each) nested in 1,735 lessons from 2010-11 and 2011-12

MIC; Perry, Seago, Carroll, Reade, and Chu: full lessons from 47 lessons, Spring 2016 Math in Common districts

MIC: Composite Lesson Scripts – "High" and "Low" Ratings, Spring 2016



- Significant cross-lesson variation within category
- Differences between "high" and "low" rated composites:
  - Number of lesson segments
  - Amount of time
  - Activities interpreted very differently
  - Intro and outro activities for L-E-S lessons
    - Warm-up e.g., Number Talk
    - Summary
- Middle grade lessons more frequently in lower rated group.

FEATURES OF A "HIGH" LESSON – 1ST GRADE, 2 DIGIT + 1 DIGIT ADDITION

Rebecca's Notes - Why might high scores have happened?

Placement **of lesson in unit; content; source**: **just beginning** to regroup ones to make tens
# of activities/ tasks: Mental math warmup; **2 regrouping problems** - Ss could choose within differentiated worksheet; dice game and sharing of solutions
Lesson goals/ design: building on making a ten strategy; T understands regrouping need as prep for 2nd grade
what happens during whole class time?: P-P-W **cherry diagram**; Teacher asks **follow up questions**. T encouraged Ss to think about the value of blocks and whether modeling made sense or not. Strong connection between the place value and their modeling of the problems. **S asking each other to defend their answers**; T closely monitoring kids' solutions in relation to anticipated solutions - **calling on Ss with certain solutions to drive lesson trajectory**; Explicit **discussion of features of the problem that make it helpful**—"is it helpful to decompose the 49 or 3?"
Tool use: **base ten blocks used to support linking to symbolic notation (and show operations);** students facile with using marks/ tallys when they run out of concrete manipulatives
Individual student time?: Ss use individual white boards; **solve problems individually and then share with partner**; each student also has worksheet
S grouping: Partners working with same white board/ manipulatives; Ss discussed and built on each other's ideas, especially in pair work—they collaborated in their problem solving and respected each other's ideas
Obvious assessment: White board; **t use of dice game and written results on white board** to demonstrate Ss understanding

Feedback to district representatives (academic officers, TOSAs)

- Debriefing conversations with district reps immediately after observations
  - Discuss observations, share initial impressions, calibrate
    - About observation process and tools
    - About lesson structures
    - About mathematics
- Summary memo across all observations ~ 50 in Spring 2015

- Analysis of ratings by district

Our Advice:

- **Use common instrument and careful evidence to consider the structure of teachers' mathematics lessons.**


CREATED USING
POWTOON

CHALLENGES AND POSSIBILITIES

Common standard and single lens toward equity across districts – calibration re: "good" instruction for all kids

Comparison to local efforts

- Enables multiple perspectives on lessons and forces clarity of description and evidence
- May not "fit" easily with local purposes

Scaling the idea of careful observation – Spreads message about importance of close observation to understand implementation

I. Two Projects – Common Purpose, Different Levels

Observations to improve mathematics lessons via research, evaluation, and coaching.

Three questions frame this presentation:

1. For ***what*** are we observing?
2. At what scales—***where and when***—are we observing?
3. ***How*** can observations influence practice?

For More Information

For additional information about QTEL:

https://qtel.wested.org

For additional information about Math in Common:

https://www.wested.org/project/math-in-common-evaluation/

Detailed Notes of Workshop Sessions 2017.03.16.0330.Chu.Perry

Workshop Session 2a: Observing for equitable opportunities to Participate in Mathematics Lessons, Activities, and Interactions.

WestEd Is a nonprofit research development and service agency, https://www.wested.org/. The portfolio across WestEd is quite diverse with the two presenters both being involved in their mathematics program. The focus today is to share tools developed for classroom observations to improve mathematics lessons via research, evaluation, and coaching.

Three questions frame this presentation:
1. For what are we observing?
2. At what scales—where and when—are we observing?
3. How can we use this observation to influence practice?

Quality Teaching for English Learners (QTEL) initiative provides discipline-based, whole-school professional development integrated with instructional coaching for teachers. What this entails is a vision of what that quality teaching is. This will share tools and give specific examples from elementary school in Pacific Northwest with six teachers in grades 3-5, one ESL specialist, and two mathematics coaches

1. For what are we observing?
WHAT: 5 principles for what it means to teach English Learners with quality. These definitions came from more the literature and ELA, instead of mathematics and Chu helps translate that into mathematical context.

- Sustain Academic Rigor - cognitive demand
- Engage in Quality Interactions - the focus today's talk
- Maintain a Language Focus - What does it mean to maintain a LANGUAGE focus? What does it mean to move beyond antiquated focus of words -> sentences -> clauses and instead to focus on how language plays a role in moving the mathematics forward.
- Balance High Challenge, High Support instruction - often labeled high expectations, instead emphasize the interplay with the challenge and support.
- Provide Quality Curriculum - giving teachers high challenge/high support tools to support this interaction that over time will build into quality curriculum material

In looking at these 5 principles it becomes a matter of scale. When we work with teachers we talk about the different teaching scales...
2. At what scales—where and when—are we observing?
Unit -> Lesson -> Moment -> Task -> Interactions (back/forth between individuals communicating)

Framing this also helps think about how to work with teachers through instructional coaching, going through the process of planning, observing, debriefing in order to advance their ability to examine their practice and learn from it.

At lesson level: provide teachers with three moments architecture - ways of design instruction that flows naturally to focus development. Three moments: Concept driven with interactions that they need to focus attention on the concept. Thus Three Moments Architecture: Preparing -> Interacting -> Extending into novel settings.

This is Compatible with : Launch -> Explore -> Summarize. And compatible with Dan Meyer's 3 act problem Instead of focusing on solving the problem the teachers need to articulate the mathematical conceptual point of the problem. This becomes an amplification of what mathematics that the problem enables.

Scaffolding Tasks/ Activity/ Segment of Lesson with beginning/middle and end and purpose:
A key aspect of scaffolding tasks is constructing meaning rather than demonstrating grammatical form/ linguistic display. In contrast to exercises or drills, tasks have several critical features:

- A task is primarily focused on meaning, rather than grammatical form or linguistic display.
- A task requires both conceptual and linguistic processes to complete.
- A task has a clearly defined communicative outcome.

Within the task you have the turns that individual students make as they grapple with making sense and developing meaning.

At what level are you going to observe for quality interactions?

> **Sustained talk**: Turns must be long, must have ideas, must be complex and must connect with each other sustained and reciprocal talk between students and teachers that is not dominated by one party.
> **Co-Constructing knowledge mediated by language** - Reconnect to rigor - quality interactions allows students to co-construct disciplinary understandings through the use of language. This is what quality interactions sounds like and what it hopes to achieve

So this framing shows what and where you're looking for when looking for quality interactions by students.

How does this actually play out in the school where QTEL is being used?
3. How can observations influence practice?
HOW: Instructional Coaching **Walkthrough or observation protocol** - QTEL prefers sustained observation so you can see how pieces fit together more broadly, rather than a breeze-through 15 minute observations. Observe each other and learn from the process. Using this teachers can identify the indicators of the principles that we're actively looking for in quality teaching.

NOTE: Goal of QTEL is trying to get teachers to be task engineers - teachers should think about how to setup the interactions that require peers to communicate with each other to achieve something. To guide teacher's pedagogical reasoning about interactions, we provide a taxonomy:

- Information gap - students are given task to describe the card in front of you to a partner who has to create the piece that is in front of you. Facilitates specific kind of communication between students.
- Opinion gap
- Antisymmetric/Reciprocal
- Linking
- Jigsaw

Now we can look at this in action and discuss some of the advances and challenges….
A Remainder of One. by Elinor J. Pinczes - tells story of 25 bugs trying to march in a parade evenly and it keeps not quite working out. This is part of the standard for this school district. Think about chances for quality interactions. If the teacher is reading the story out loud in one voice then you can anticipate the limited interactions that result. The teachers instead set up a **Reading in Four Voices**… There are four styles of font: Plain, **Bold**, *Italic*, Underlined in the book, each belonging to a different student. The different style of text is a signal that it's time for a different student to read.

For example:
All 28 soldiers marched past the big crowd, **nervously hoping** they'd make their queen proud. *The troop had divided by six for the parade;* **But there was a problem** with the groups they made. The royal head shook. **"It's worse than before!** *Instead of three left over, now there are four!*" "I'm sorry Privates," said Joe's Sergeant Steven. **"If you four stand down**, *then the troop will look even."* The six lines of four marched off **as the sun shined**, *while sad Joe and three others* had to stay behind. *It wasn't much fun* **for Joe and three bugs more** to feel so left out—*a remainder of four*.

The students first read through the whole story for meaning. At 2nd reading, use transitions/pauses in between different times students reading to give students a chance to pause and think, if they're co-constructing a model is there something they need to add? The whole group pauses and thinks about how to change their diagram. What do the numbers represent? How can we show this? Give every student an initial role and decentralize the teachers' role.

What happens in the classroom - Discussion!
They're trying to communicate what the story says and also trying to figure out what's going on in the story. 4th graders get into the story and try to construct what is going. They're trying to show what the stories says, revise what it is going on. Does it make sense.

There is evidence from observations that the students are engaging in sustained and reciprocal talk about how these models align with the narrative aspect. What is implicit in all this, it is a story that has linguistic features that 4th graders can get into and translate into more mathematical.

Logistic question: Grid paper or white paper? Official guide says blank sheet. With grid paper saw students making four separate models with four different sheets of paper. They're all different. Do we actually have the same model? 4 rows of 7 or 7 rows of 4? This is a challenge - tiny choices that have big influences on how students engage in tasks.

Three Challenges and Possibilities of this work:
Challenge in this work: Tiny little choices to help the students focus on the math.
Challenges/Possibilities;

- Discipline of observation - first time with teachers to just observe took a lot of support. Observers need to observe, we want to intervene, hard to not BE THERE in the mix
- Focus on rigor and coherence - how the mathematical ideas build across the tasks to build lesson coherent ideas about mathematics. Being happy with interaction level versus seeing how the task fits across the bigger picture of the lesson.
- Putting language to work - This is still one of the biggest challenges. This is a language rich task but haven't yet made a shared definition of what language is and isn't and how to put it to work for designing more quality experiences in teaching.

NEW SPEAKER: Rebecca Perry
The Math in Common Initiative. 10 districts up and down the state and 2 partners to help them think about how to support Common Core implementation in mathematics. Districts will learn something from WestEd support that they can share to other districts in California. WestEd is both the formative evaluator and the technical support.

One of the Evaluation Questions: Teachers' Instruction shifts - what does that look like? How to make sense of this? Is their instruction moving towards the Common Core, or not? WestEd have put together a team that goes out and observes classroom instruction. May be a small, and possibly biased sample but gives a taste of what's out there.

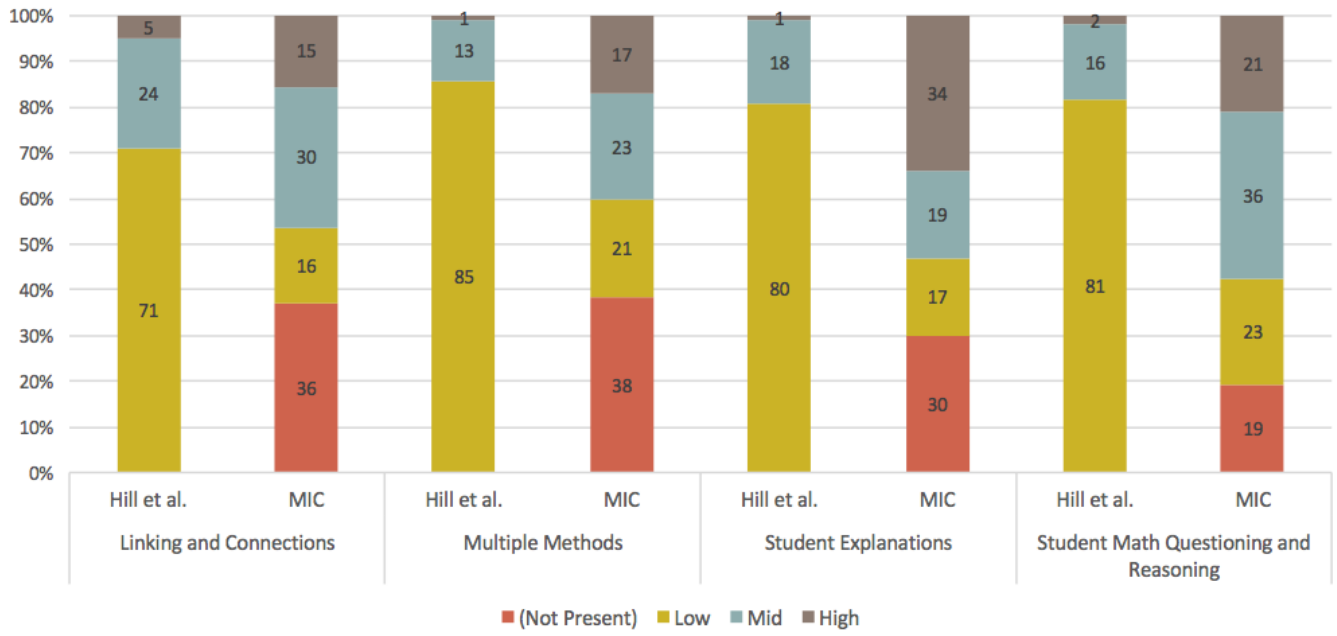
Started with MQI [Richness of The Mathematics; Common Core... Practices] and found it was missing a few items so added a few items from Schoenfeld's TRU framework. The districts are familiar with TRU and are thinking about how to observe instruction on their own. TRU allows them to have discussion with a common observation system.

Data from last year:

- More linking between representations: Spring 2015, "not present" 53% of lessons Spring 2016, "not present" 36% of lessons
- Good use of student sense-making, student explanations, math reasoning: Fall 2015 and Spring 2016, rated "high" in ~30% of lessons
- Mathematics - 30% of lessons got expert rating- great! Fall 2015 and Spring 2016, rated "3/Expert" in 30% of lessons
- Agency - individual student opportunities - not great, Fall 2015 and Spring 2016, rated "1/Novice" in 22-23% of lessons

Wanted to investigate this compared to another sample (specifically Hill, H. C., Litke, E., Lynch, K., who have a paper forthcoming).

Percentage of Segments or Lessons at Each Score Level on MQI Elements



Hill, Litke, & Lynch, forthcoming: 13,166 lesson segments (7.5 min each) nested in 1,735 lessons from 2010-11 and 2011-12
MIC; Perry, Seago, Carroll, Reade, and Chu: full lessons from 47 lessons, Spring 2016 Math in Common districts

- Hill, et al doesn't use Not Present.
- Hill, et al broke their lessons into 7.5 min sections vs WestEd used 47 full minutes.
- WestEd has higher than Hill does and Hill have more low then WestEd does. That said, using these quantitative indicators washes out some of the aspects of the lessons. The need to look at what is happening in the lessons that are ranking "high" and what is happening in those ranking "low". To do this they created a composite script of the lessons and compared how time was used with the "high" and "low" ranking lessons.

MIC: Composite Lesson Scripts – "High" and "Low" Ratings, Spring 2016

- Significant cross-lesson variation within category - Within each one of the composite ('high", "low") there is a lot of variation. None of the lessons alike, there a very different looking lessons. Math doesn't always look the same.
- Differences between "high" and "low" rated composites:
    - Number of lesson segments
    - Amount of time
    - Warm-up e.g., Number Talk -"High" ratings - used number talk/mental math - they're investigating further. Still want to investigate how those are centrally connected to the mathematics.

- Launch is shorter in the "high" lessons to give students more time to think independently about the mathematics themselves.
- Whole class discussion is slightly different in "high" than in "low". Often in whole class discussion there is a lot of show-and-tell. Here in the "high" lessons there is less of that and more summary of the mathematical point of the lesson. They are encouraging the districts to do that, not using the bell to stop the lesson and instead taking time for students to stop and think about what they learned that day.

Color Coding lessons - Why might high scores have happened?
Let's take one "high" ranking lesson and try to unpack the mathematical opportunities happening during that lesson. The color coding gives some hints about what's happening in this 1st grade lesson:

FEATURES OF A "HIGH" LESSON – 1ST GRADE, 2 DIGIT + 1 DIGIT ADDITION

Rebecca's Notes - Why might high scores have happened?

Placement **of lesson in unit; content; source**: **just beginning** to regroup ones to make tens
# of activities/ tasks: Mental math warmup; **2 regrouping problems** - Ss could choose within differentiated worksheet; dice game and sharing of solutions
Lesson goals/ design: building on making a ten strategy; T understands regrouping need as prep for 2nd grade
what happens during whole class time?: P-P-W **cherry diagram**; Teacher asks **follow up questions**. T encouraged Ss to think about the value of blocks and whether modeling made sense or not. Strong connection between the place value and their modeling of the problems. **S asking each other to defend their answers**; T closely monitoring kids' solutions in relation to anticipated solutions - **calling on Ss with certain solutions to drive lesson trajectory**; Explicit **discussion of features of the problem that make it helpful**—"is it helpful to decompose the 49 or 3?"
Tool use: **base ten blocks used to support linking to symbolic notation (and show operations);** students facile with using marks/ tallys when they run out of concrete manipulatives
Individual student time?: Ss use individual white boards; **solve problems individually and then share with partner**; each student also has worksheet
S grouping: Partners working with same white board/ manipulatives; Ss discussed and built on each other's ideas, especially in pair work—they collaborated in their problem solving and respected each other's ideas
Obvious assessment: White board; **t use of dice game and written results on white board** to demonstrate Ss understanding

These colors highlight different research directions/ aspects to follow-up on and try to make sense of as they are observing:

- **Blue**: When we observe really impacts the observation. Does it matter when we come into to observe the lesson? Does it make a difference if you come at the start of a mathematical unit versus at the end of the unit? Does that impact the rating?
- **Red**: Number of mathematical activities being asked to do during the lesson- you can overload on activities, especially if they aren't connected.

- **Green**: What different representations are being used during the math class? How are they used to support the math in the class?
- **Purple**: Interactions between students, interactions between students/teachers. Looking at kinds of interactions happening in the classroom.
- **Yellow/orange**: How are the teachers using student's thinking to guide the lesson in the classroom?

WestEd is trying to feed this all back to the district leaders while thinking about (a) what they should be doing for the observation process (b) how can they be helping their teachers structure their lessons to create equitable and mathematical opportunities for kids. What WestEd does when they do the observation is that they have a debriefing discussion with the district to share observation instruments and create an opportunity for discussions about what we're all learning together. WestEd does a summary memo across all observations, looking for patterns. They also give districts individual ratings and while there isn't a lot to be learned by the ratings from 6 teachers it does give insights and show these districts how a common instrument to highlight mathematical issues and variation across the districts and how they might think about using this instrument for themselves.

They then shared a video that shows you how one district chose to respond to the feedback from the observation. The video provided some tools for the teachers to wrap up their lessons formally and reflect on their lesson, refocusing on mathematical goals.

This may not have seemed like a big point but it did help with those teachers that weren't doing that, starting a worthwhile discussion.

Challenges and Possibilities of using this common observation tool.

- So this idea of using a common standard to understand what good mathematics looks like across districts/across classrooms/ across teachers/ across students is something WestEd wants to get out there.
- Have a conversation around this common instrument.
- May not "fit" easily with district's local purposes - it is a worthwhile discussion.
    - Enables multiple perspectives on lessons and forces clarity of description and evidence
- Scaling the idea of careful observation – teachers are used to being observed for evaluation purposes and it's important to refocusing on having the observation focus on what we mean by good mathematics.

Haiwen Chu (WestEd), Rebecca

Question period from Audience:
Q: You were not observing for evaluative purpose but were rating on give number scales, how did you balance that?
Perry: Teachers want feedback. WestEd does produce a number but they instead focused on the qualitative feedback. The teachers didn't really want the numbers, they wanted more of the feedback. WestEd will ultimately have charts, comparing districts, looking at the ratings across a sample period and that will mean something, it's a bit tricky.

Q: The video (that the school district produced about lesson wrap-ups) worries me. It's not that easy to do those things. The video makes it seem like it might be easy. On the other hands, it is good the district highlighted it and acknowledge that we need to work on it but you don't want teachers to simplify it to an A-B-C process.

Perry: Is an issue, this district has site coaches that understand what that means and the sites are helping them to add this as one component of improvement. They are working with PLCs and this is just part of the broader professional development system, there is funding to support this bigger process.

Q: With the (reading in four voices) reading activity… Grid paper or blank paper?
Chu: I'm totally a blank piece of paper.

Q:**Did anyone do a kinesthetic activity where one student lined up the other students using this information?**
Chu: Haven't seen it done but would probably be done in earlier session, when they were actually reading the book. There are other kinesthetic tasks teachers have implemented very well involving information gaps. My favorite is when they have a shape taped to their back and they have to ask students to figure it out. The students get up and move around to figure it out. It's not that reading in four voices is a magic bullet but if you want to have the whole class moving around experience you'll need a new task and a new purpose.

Q: Extend what you're thinking about to the math faculty ('teachers") who are preparing future math teachers ("students"). What do we want to get into our faculty for the future learning of the future teachers. These are the people we want five years from now to be thinking the way these teachers should be thinking.
Chu: Design - how to design the tasks, how design the move and pieces and how they fit together. Be clear about what the purpose of the moves and pieces actually it is. It's part of WestEd does, designing the interactive structures that afford students those opportunities.
The other piece, designing the observation which we were focused on in this talk, is harder. We can get video but we don't have video.
Perry: One thing we need to be clear on is what we're driving towards, what are the goals. What is this supposed to look like? Get calibrated around defining success.

Q: Reiterate: How might the video and things you use with teachers that involve children become part of the college classroom for future teachers? Not just video of the faculty teaching but also using video of teachers teaching children in the math classroom.
They decided to take this offline and discuss this more.

Q: Is there a place to go to learn more about activity structures that get at this taxonomy of quality instruction
A: https://www.wested.org/project/math-in-common-evaluation/

Chu: We have the actual reading and do believe the best way to learn something is to experience and then reflect and analyze. If you can find three other people and pick a font then you can try (reading in four voices). WestEd have teachers do it in PD before they do it in their classrooms.

Comment: It seems to me that both the projects you are talking about are disrupting the status quo about how we engage people with what's happening in math classrooms. The students are doing the reading and encouraging students to think differently about the reading that they're getting from the text. When you're observing teachers and saying, "we just want to understand what's happening and what's successful", that's very different structures for students and teachers. This gets back to mathematics teaching and equity are visible and what's invisible.

Perry: Great point. There are some districts that keep things happening in the ways that they've been happening. For example unions won't let principals observe teachers. Makes it hard to break patterns that have created inequity in the past.

Q: Where did the lessons ('high'/'low' lessons) come from? Were the teachers making them up?
Perry: All sorts of places, some come for the curriculum of the districts and others picked by teachers. This is another variability in the study.

Q: The two forms of composite lesson structures that you saw, were those a proxy for teachers' experience
Perry: Not necessarily experience. Might have been related to grade level, more "lows" at middle school level. What they're doing now is extending the sample size of the composite lessons to see if it that holds as we increase the size of the study.

Q: Can you expand on the linguistic demands of common core in the math class? In particular, how is that redefining what math literacy is and what best practices would be to support students in math literacy. For example, when I am observing language arts lessons that includes isolated word work including etymology and spelling and using it isolation, instead of using context. Are you seeing best practices of language arts field and pedagogy being able to transfer over to common core linguistics.
Chu: Challenge and possibility to bring the lessons from language arts. There are deep ideas of mathematics that are hard to shift. Multiple solutions, multiple strategies is an example. Don't see different models all at once, don't see the coherence. Because mathematics is so deconstructed, it's like language that we can't articulate what is that we're trying to say. Ideological practices in mathematics that still need to be questioned and pushed. We always go back to what's the mathematical point/goal of the lesson? Not the problem, what's the goal. It's one step but the transfer barriers are quite high. When you have the literary piece, the mathematical goals got shifted. It can be quite invisible.

Perry: In ten districts that we're working in, the students mathematical discourse was a central focus from all of the district. One thing that WestEd tried to do right away is define what they wanted to see in regards to good student mathematical discourse. This group of mathematical leaders from the district within a four hour meeting could not agree on what they wanted to see kids doing. In the districts they are starting to see Aahs - there are commonalities between NGS and language arts and seeing this all come together but it's still hard to get a grip on.

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