

DEVELOPING PRE-SERVICE TEACHER NOTICING VIA THE LESSON *SKETCH* PLATFORM

**STEPHANIE CASEY & JOEL AMIDON
AMTE 2016**

To engage in the activities associated with this talk please navigate to lessons sketch.org and create an account

PRESENTATION GOALS

Share the design process used to create *LessonSketch* modules that develop PSTs' professional noticing and incorporate components of the TEACH MATH video analysis activity;

Share and engage participants in two *LessonSketch* modules; and

Share findings and feedback regarding how these modules supported preservice teachers' learning to professionally notice in multiple settings.

SURVEY VIA PADLET

What methods do you use to develop noticing with PSTs?

What is your role in the teacher education of PSTs at your institution? (e.g., methods instructor, content instructor, practicum supervisor)

NAVIGATE TO [AMIDONPLANET.COM](https://www.amidonplanet.com) TO FIND THE LINK TO THE PADLET

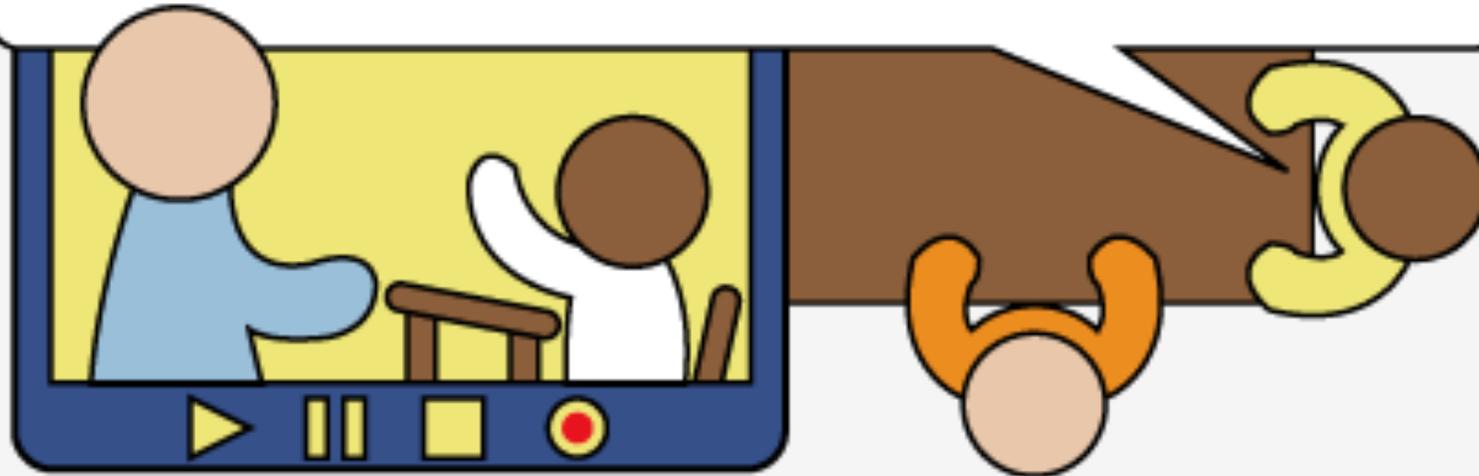
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LessonSketch



Examine - Discuss - Create - Practice

Beta

...collections, tools, and online community are devoted to the **creation**, **examination**, and **discussion** of stories of instructional practice.

Site for users of LessonSketch (<https://sites.google.com/site/lessonsketchproject/>)

WHY USE LESSON *SKETCH*?

Lack of high quality, publically available video of classroom scenarios (partic of secondary classrooms and certain content areas like statistics).

Can design the *LessonSketch* representation to focus on key aspects without insignificant classroom details that often are distracting to PSTs in classroom video.

PSTs can depict detailed problems of practice that occurred yesterday or tomorrow.

Electronically documenting PST responses to problems of practice

Free!

PROFESSIONAL NOTICING

Means to develop PSTs' abilities to use student thinking as a basis for instruction

Professional noticing of student thinking (Jacobs, Lamb, & Philipp, 2010) is comprised of 3 skills:

attending to children's strategies

interpreting children's understandings

deciding how to **respond** on the basis of children's understandings

LESSON SKETCH EXAMPLE

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Lesson Sketch

LessonSketch » Exploring

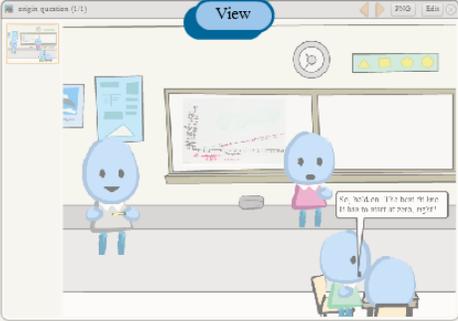
Log out
Change Password
Stephanie Casey

part 2 slide 12 (Screen 12/13)

Jump to Skip Exit Save Back

Below you will see the next frame of the story. Please view the frame then respond to the following prompts in the boxes below:

Interpret this student's question: what is driving the raising of this question and is it a valid point?



Please write your response here.

Respond to this student's question as his teacher.

2:05 PM 1/12/2011

LESSON SKETCH EXAMPLE

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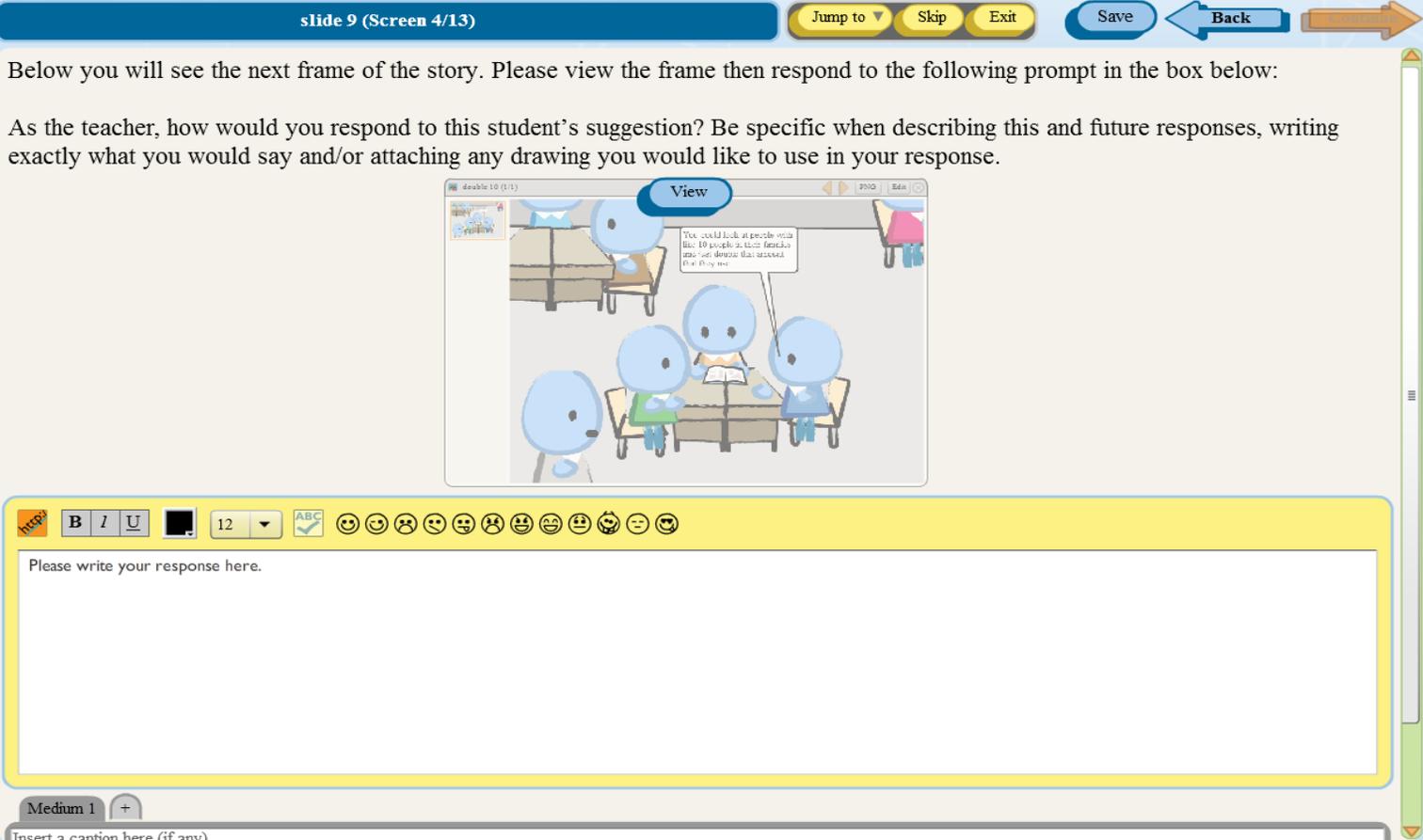
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Stephanie Casey Examine · Discuss · Create · Practice

slide 9 (Screen 4/13) Jump to Skip Exit Save Back

Below you will see the next frame of the story. Please view the frame then respond to the following prompt in the box below:

As the teacher, how would you respond to this student's suggestion? Be specific when describing this and future responses, writing exactly what you would say and/or attaching any drawing you would like to use in your response.



double 10 (1/1) View

You could look at people with that 10 people in their families and see how they succeed. It's a big one.

Please write your response here.

Medium 1 +

Insert a caption here (if any)

2:08 PM 1/7/2016

TEACH MATH VIDEO ANALYSIS ACTIVITY

[Teachers Empowered to Advance CHange in Mathematics \(TEACH MATH\) project](#)

Incorporated components of the video analysis activity (Roth McDuffie, Foote, Drake, Turner, Aguirre, Bartell, and Bolson, 2014) developed by the TEACH MATH project when designing *LessonSketch* modules

Four “lenses” (teaching, learning, task, and power and participation) draw attention to students’ multiple math knowledge bases.

Modules develop students’ professional noticing skills within each of these lenses

What is/are the central mathematics ideas in this task? (i.e., identify specific concepts, processes, skills, problem-solving strategies).

1. TASK: What makes this a good and/or problematic task? How could it be improved?

2. LEARNING: What specific math understandings and/or confusion are indicated in students' work, talk, and/or behavior?

RESOURCES & KNOWLEDGE BASES STUDENTS USE

**(e.g., mathematical, cultural, community, family,
linguistic, students' interests, peers)**

3. TEACHING: How does the teacher elicit students' thinking and respond? (e.g., moves, questions, responses to students' correct answers/ mistakes/ partial solutions, decisions).

4. POWER & PARTICIPATION: Who participates? Does the classroom culture value and encourage most students to speak, only a few, or only the teacher?

LESSON SKETCH EXAMPLE

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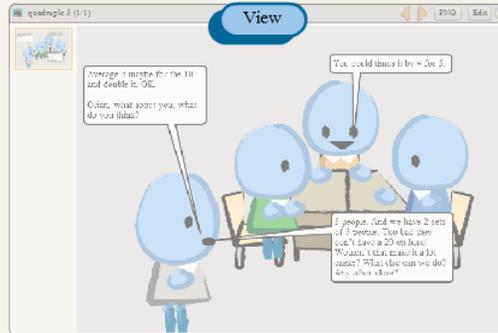
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slide 11 (Screen 6/13) Jump to Skip Exit Save Back

Below you will see the next frame of the story. Please view the frame then respond to the following prompts in the boxes below:

Does the teachers' implementation of the task maintain the cognitive demand of the task? If so, how does the teacher do so? If not, what does the teacher do to diminish the level of cognitive demand?



Rich text editor toolbar with bold, italic, underline, font size (12), and various icons.

Please write your response here.

At this point, the class is convinced that this 'scaling up' strategy is the best one to take. However, the curriculum writers designed this

LESSON SKETCH EXAMPLE

part 2 slide 12 (Screen 12/13) Jump to Skip Exit Save Back

What resources or knowledge (e.g., mathematical, statistical, cultural, community, family, linguistic, students' interests, peers) do students draw upon when interpreting the tasks presented to them in this class session, and how do these influence their learning experiences?

B *I* U 12

Please write your response here.

Who holds the authority for knowing mathematics in this classroom: students or teacher? Justify your response with evidence from the classroom depictions.

B *I* U 12

Please write your response here.

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THE MODULES: 20 MINUTE BREAKOUT

Module 1 (Stephanie):

- Depiction of what occurred in a secondary classroom when a teacher first introduced her students to 'line of best fit'
- Used in secondary mathematics methods class
- Search for experience 3886

Module 2 (Joel):

- Task analysis module with opportunity to depict student approach
- Used in elementary mathematics methods class
- Search for experience AMTEtask

DISCUSSION

Reactions to the modules

Adaptations of the presented modules

Potential uses of the *LessonSketch* platform to develop PSTs' professional noticing skills from multiple perspectives

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FINDINGS AND FEEDBACK

Findings

- Seeing value in overlapping Noticing framework with TEACH Math lenses in comparing how students choose to respond within scenarios to how they answers to issues of connection and power

Feedback from PSTs on use of LessonSketch

- I enjoyed this activity. This was a fun way to think like an educator about what is happening in a hypothetical classroom.
- I liked how it had a cartoon visual that could be followed instead of just reading text. It made the problem and questions more interesting. By also being able to see the graphs hand drawn like they actually would be in a classroom setting made the experience more real.
- This kind of helps you hone in on those things that you can notice. It kind of just slows it down and like zooms it in for you a little bit. Because there's all this other stuff happening simultaneously.
- My step-daughter is in 7th grade and hasn't been exposed to the line of best fit. Her response was EXACTLY the same as the given example. I thought that was an awesome coincidence. I am glad I had some time to think about how I will respond to both her and my future students.

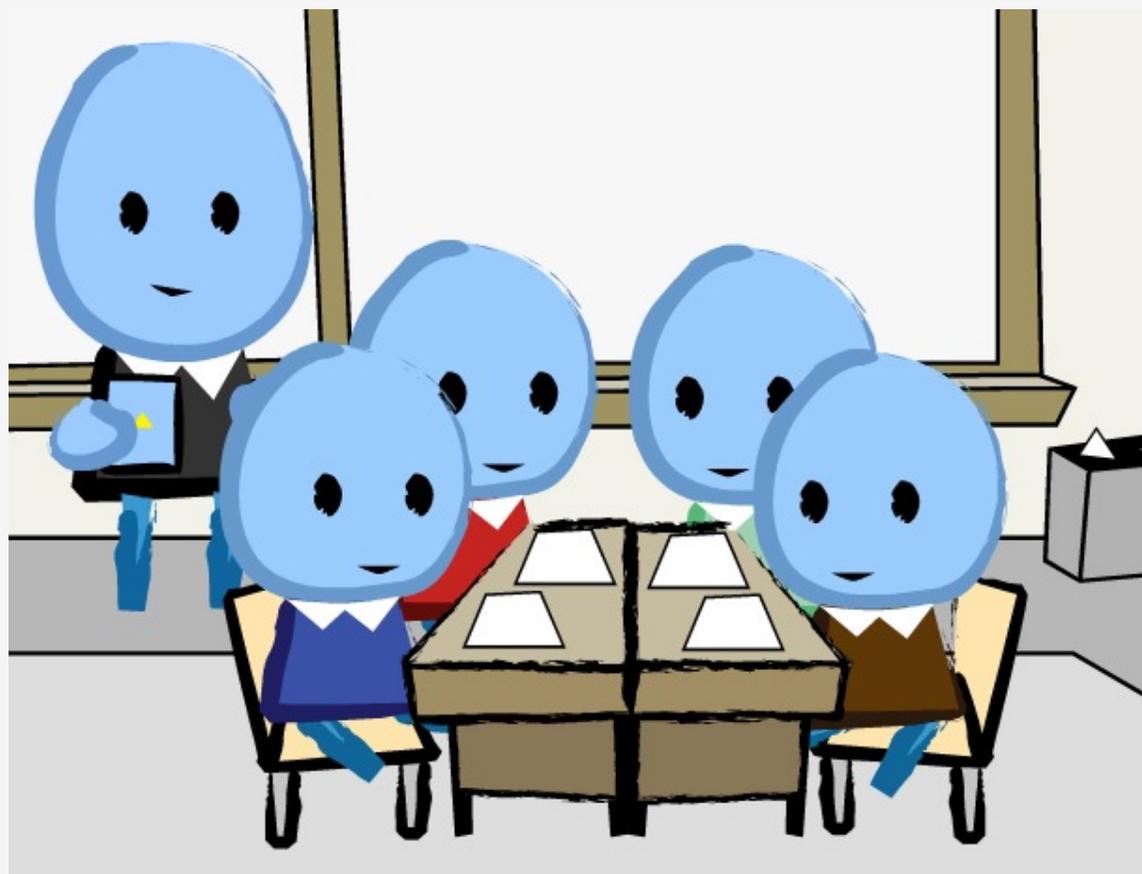
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Slides available at

<https://sites.google.com/site/stephaniecaseymath/>

and

<http://amidonplanet.com/>



REFERENCES

Jacobs, V.R., Lamb, L.L., & Philipp, R.A. (2010). Professional noticing of children's mathematical thinking. *Journal for Research in Mathematics Education*, 169-202.

Roth McDuffie, A., Foote, M. Q., Drake, C., Turner, E., Aquirre, J., Bartell, T. G., Bolson, C. (2014). Use of Video Analysis to Support Prospective K – 8 Teachers' Noticing of Equitable Practices. *Mathematics Teacher Educator*, 2(2), 108–140.