



TEACHING SYSTEMS LAB

INSPIRE CS-AI

Innovative New Spaces for Practice and
Rehearsal in Teacher Education

Nov 8, 2019

AAAI Fall Symposium: AI in K12

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TEACHING SYSTEMS LAB

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Teacher Learning Principle #1

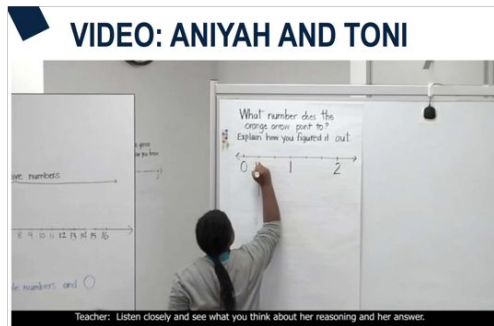
Immerse teachers in powerful learning experiences, and they will share those experiences with their students

Teacher Learning Principle #2

Teachers
primarily adopt
practices from
other teachers



"We conclude that, in the program we studied, prospective teachers have fewer opportunities to engage in approximations that focus on contingent, interactive practice than do novices in the other two professions we studied." - Grossman et al. (2009)



Decomposition

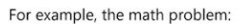
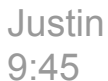


Representation

Participant	Task	Representational space
Teacher	Who would like to be the answer and you think the answer is 1? And show us your reasoning by pointing up to the board?	1. Drawing a line to show where the group is 2. Drawing what to do to launch discussion 3. Fanning the expectation for presenting
Teacher	Would like to come up to the board and try to tell?	4. Fanning of what is 'coming to the board' action
Teacher	And you know, I might not be right. That's okay because we're learning something new.	
Teacher	Is the response to come up and point at the board and explain how you are thinking about it. Would like to try that too?	
Teacher	Okay, Aniyah?	5. Encouraging a student to present
Teacher	Playing with hair	6. Encouraging another to present
Teacher	Looking at Aniyah	7. Encouraging another to present
Teacher	When someone's presenting at the board, what should you do next?	8. Encouraging another to present
Teacher	Looking at others	9. Responding to students
Teacher	Looking at that person	10. Looking up at the student
Teacher	Isn't that?	11. Responding to students
Teacher	You want me to write it?	12. Responding to students
Teacher	You're looking to hear what you think this number is and explain how you figured it out?	13. Responding to students
Teacher	Listen closely and see who and how answer. (Aniyah)	
Teacher	Did she say one-seventh?	
Teacher	Before you agree or disagree, I want you to see if there's something you don't understand about what she's agreeing and disagreeing. Just. All you can do is see if there's something you don't understand about what she's agreeing and disagreeing. Just.	
Teacher	Why, Toni, what's your question for her?	
Teacher	You did not	
Teacher	Why did Toni laugh at another student who says one-seventh across the room?	
Teacher	Did she pick one-seventh?	
Teacher	You did not	
Teacher	Let's listen to her answer now. That was a very good question.	

Approximation

Video and Transcript from Deb Ball Presidential Address



3. $\frac{1}{2} + \frac{3}{8} = \frac{\frac{3}{8}}{\frac{1}{4}}$
 $\frac{1}{2} + \frac{2}{8} = \frac{3}{4} + \frac{1}{8} = \frac{3\frac{1}{8}}{4}$

The "Real Student" copies the mistake and writes a rational.

Blank Student Work Card

$\frac{1}{2} + \frac{3}{5} = \frac{4}{10}$

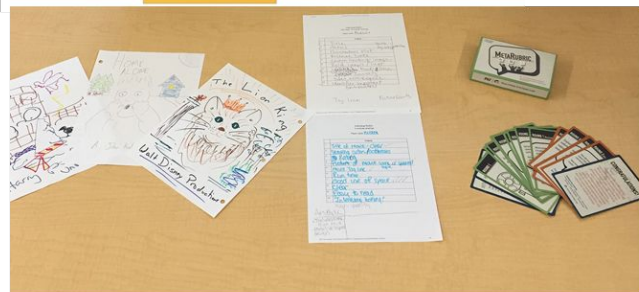
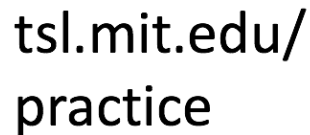
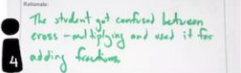
Rationalize

$1 + 3 = 4$

$2 + 8 = 10$

3

The "Bluffers" invent their own mistakes and give rationals.



Teacher Moments

Try it!

Terrell and Dustin are sitting next to each other.

Terrell: "So this is just like a programming language, we have to make our own language to describe how to put the legos together. That includes how to describe the pieces and the ways we can combine them."

Terrell sees you walk by and turns to ask a question. Terrell: "Does our language need to describe all possible ways to combine the legos?"

CLICK THEN SPEAK

MOVE ON

tsl.mit.edu/project/teacher-moments/

Teacher Moments

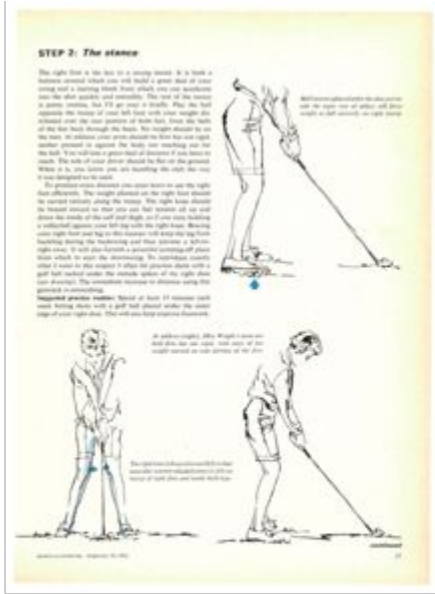


Recording...

DONE



Practice Spaces and Teacher Learning



Book Learning



Coach

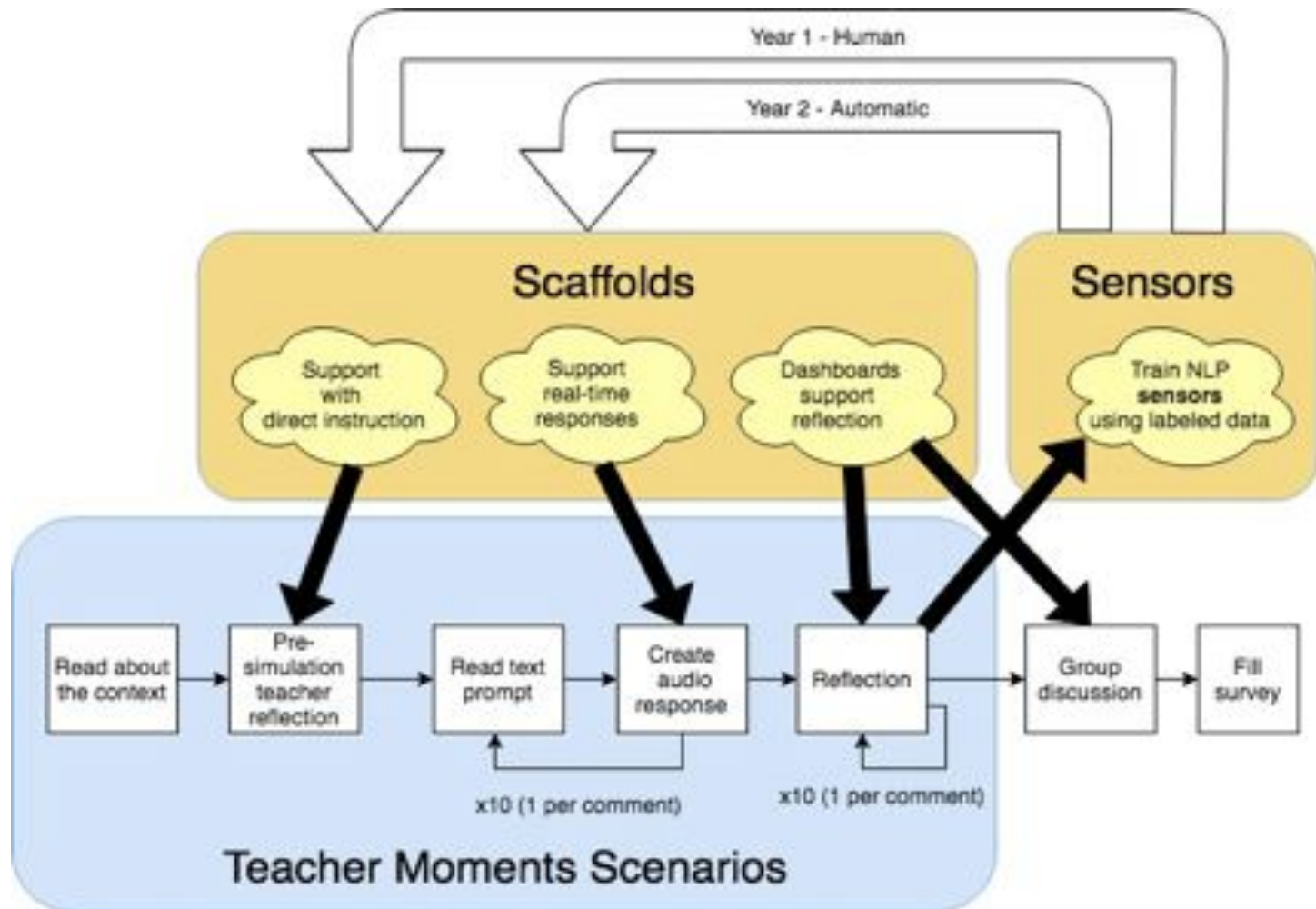


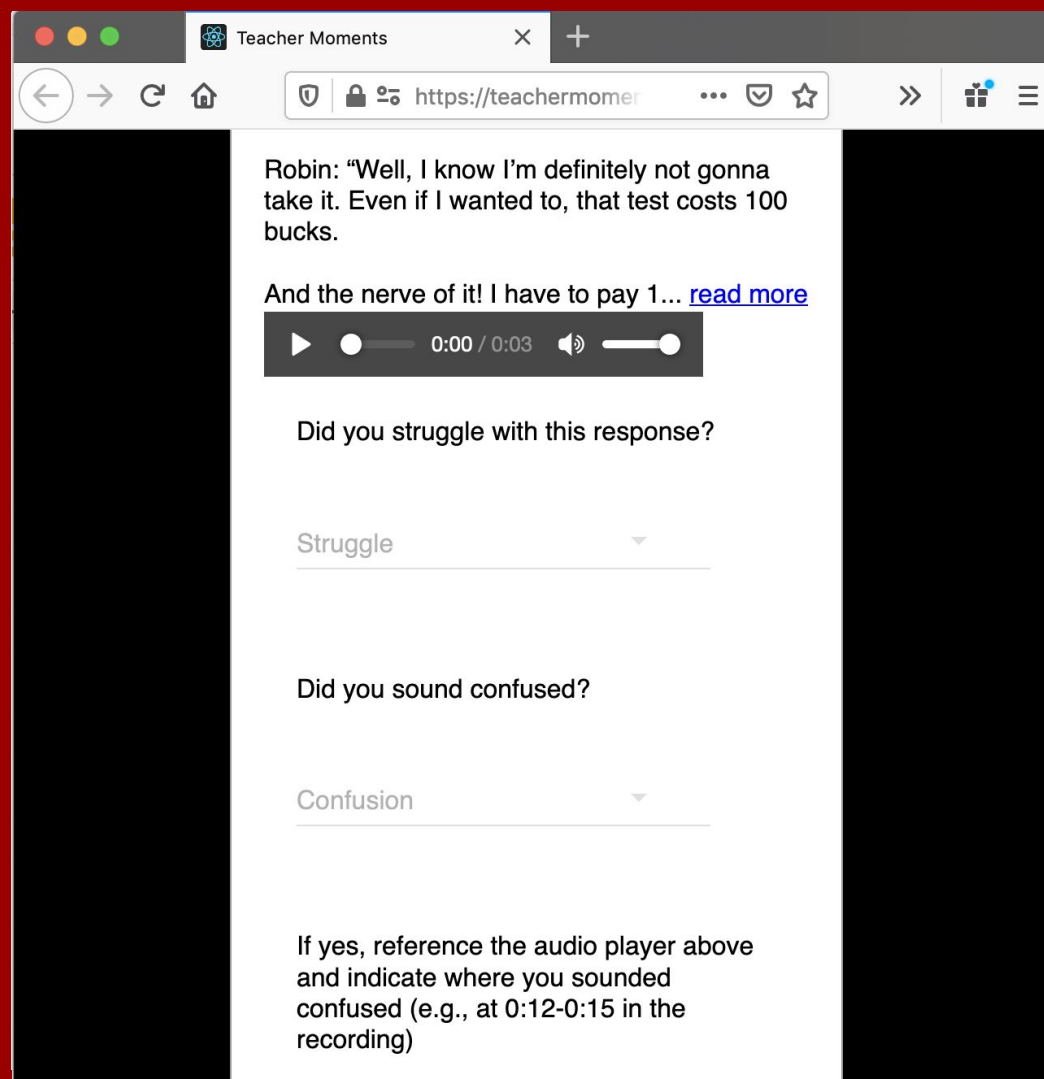
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INSPIRE CS-AI Fellows



Sensors





Teacher Moments

https://teachermomer

Robin: “Well, I know I’m definitely not gonna take it. Even if I wanted to, that test costs 100 bucks.

And the nerve of it! I have to pay 1... [read more](#)

0:00 / 0:03

Did you struggle with this response?

Struggle

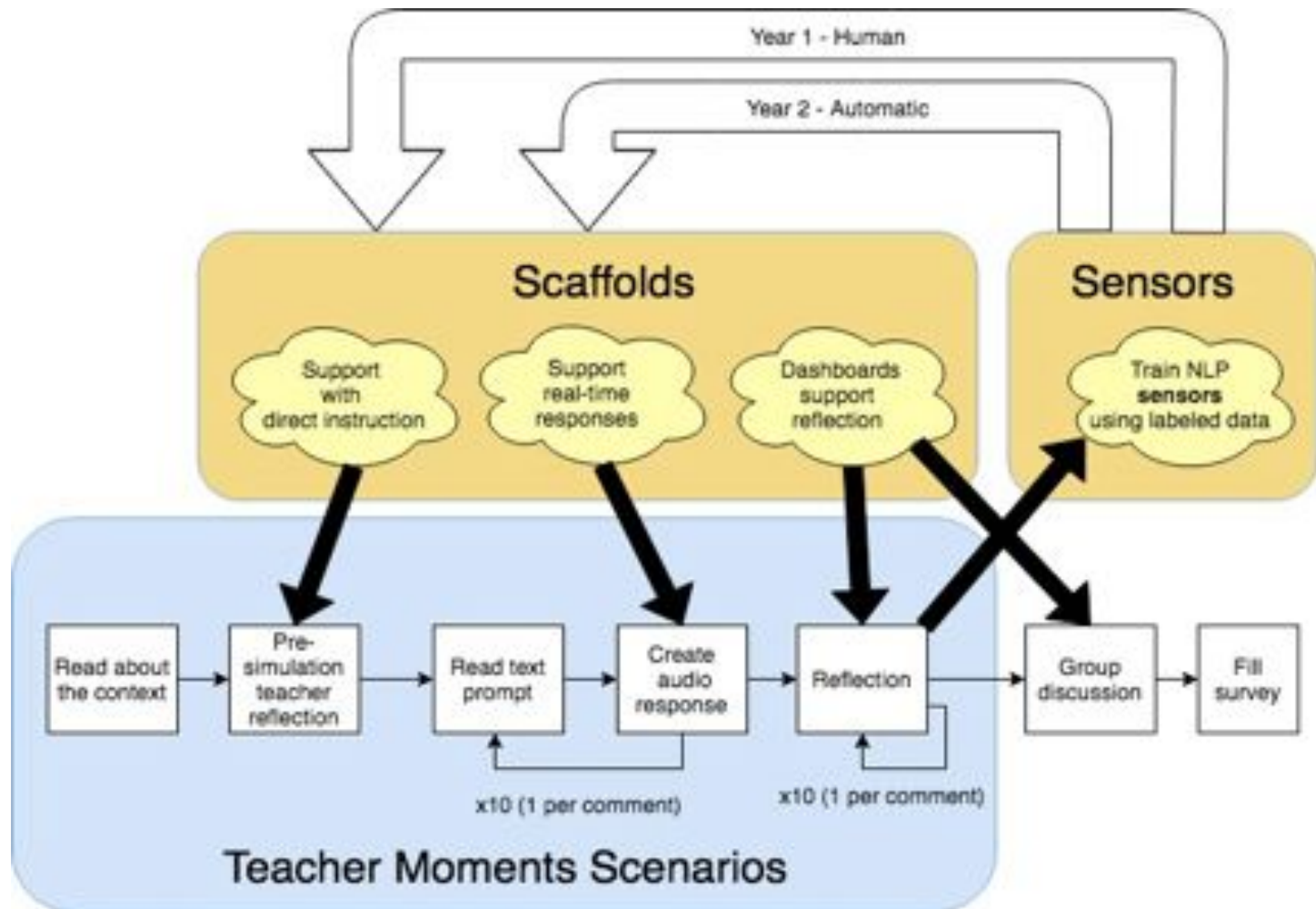
Did you sound confused?

Confusion

If yes, reference the audio player above and indicate where you sounded confused (e.g., at 0:12-0:15 in the recording)

- Participants label their responses for confusion, struggle, and other features
- We train classifiers to identify confusion and struggle in future participants
- We use these predictions to inform teacher educators and generate automated “scaffolds” like sentence starters
- “Hey Justin, that sounded a little hesitant. Do you want to try again? You might start with, ‘I hear you Robin, and that’s a real concern. I’d love to help you address that by...’”

Sensors



November 25--5pm Virtual Jamboree



SIGN UP HERE

<http://bit.ly/tm-cs-jam>

to get a Zoom link for
Nov. 25



Thank You!