Catalyzing Learner Engagement Using Cutting-Edge Classroom Response Systems in Higher Education

Julie Schell, Brian Lukoff, & Eric Mazur
School of Engineering and Applied Sciences
Harvard University
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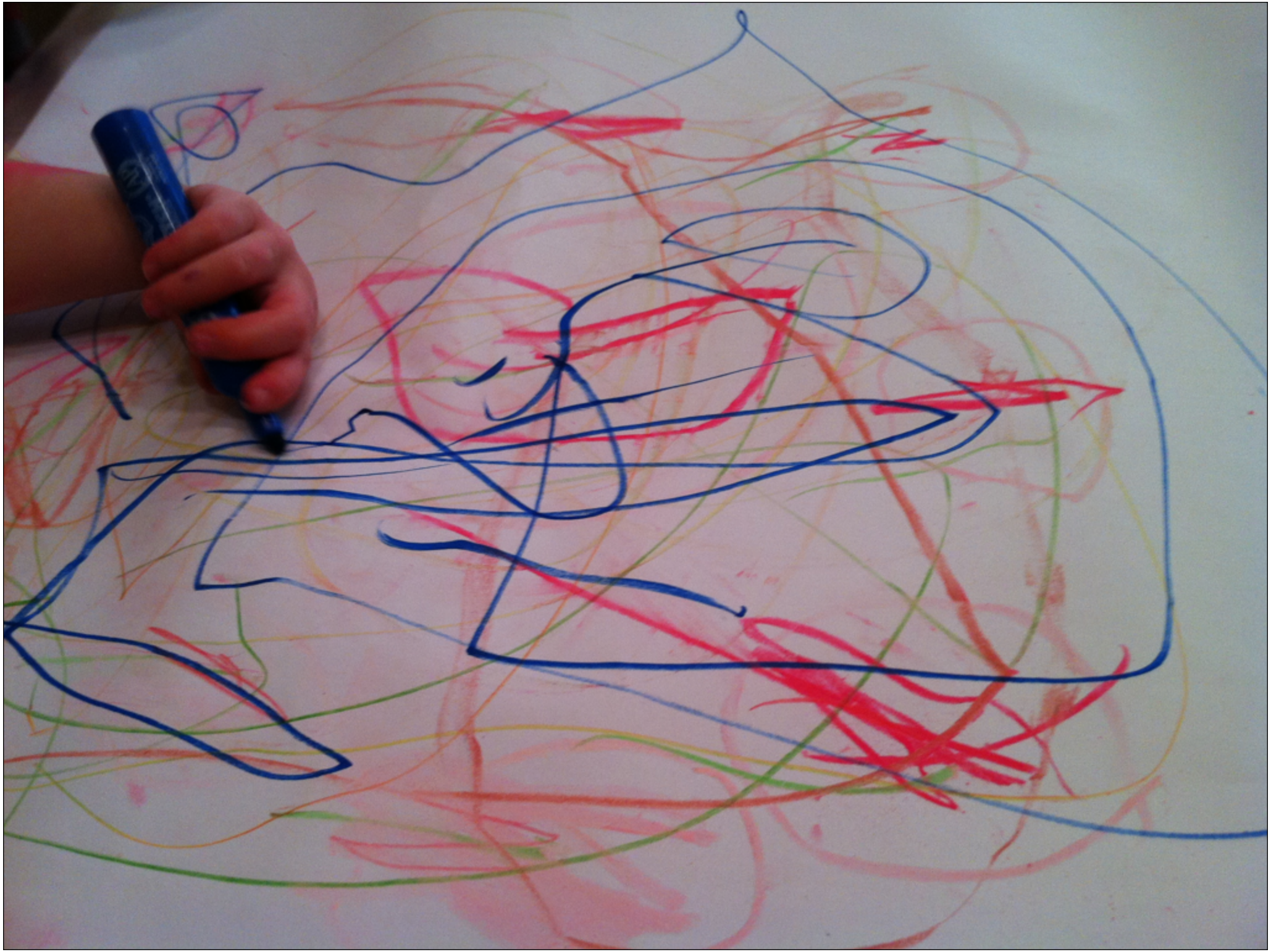
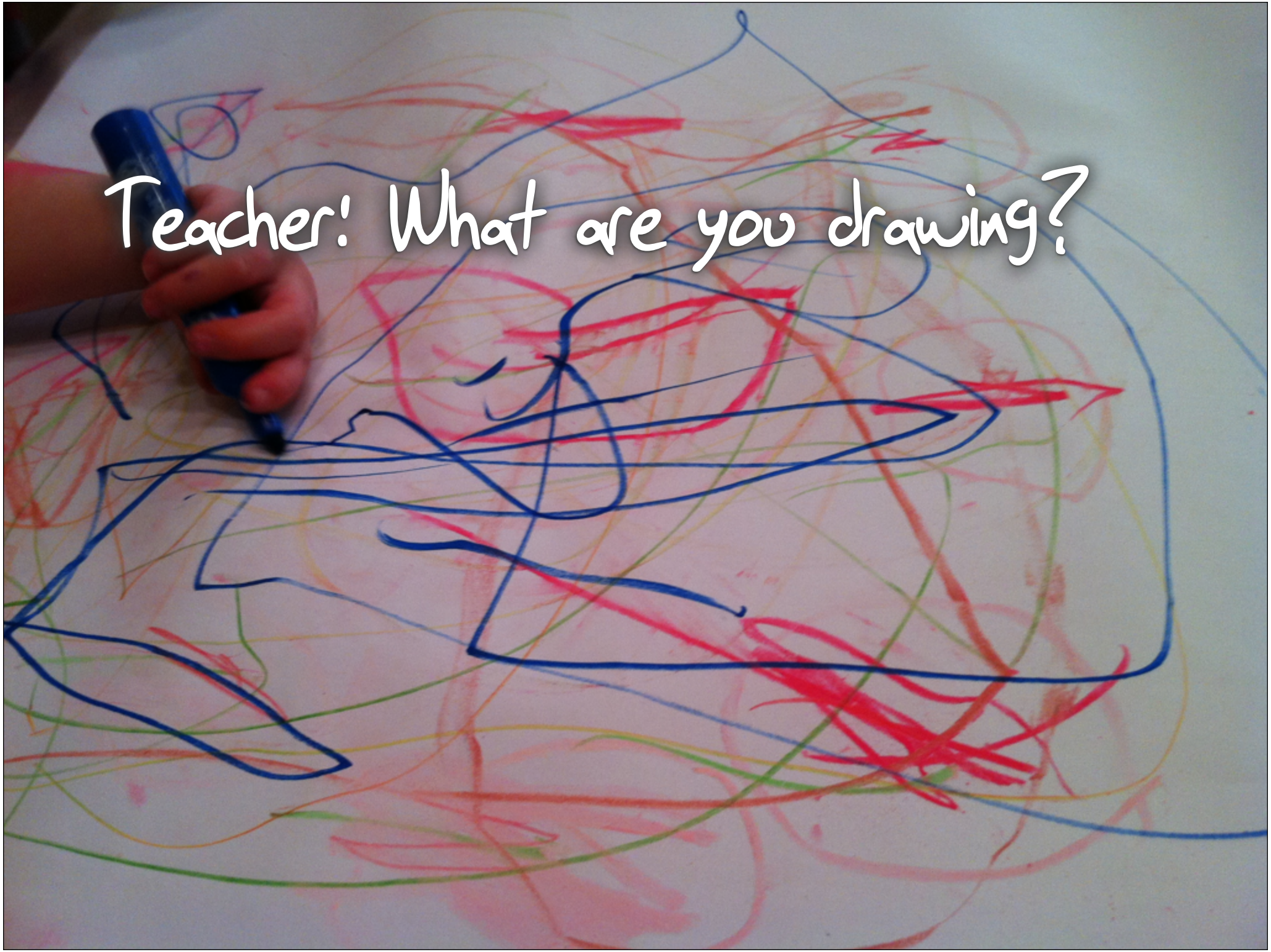
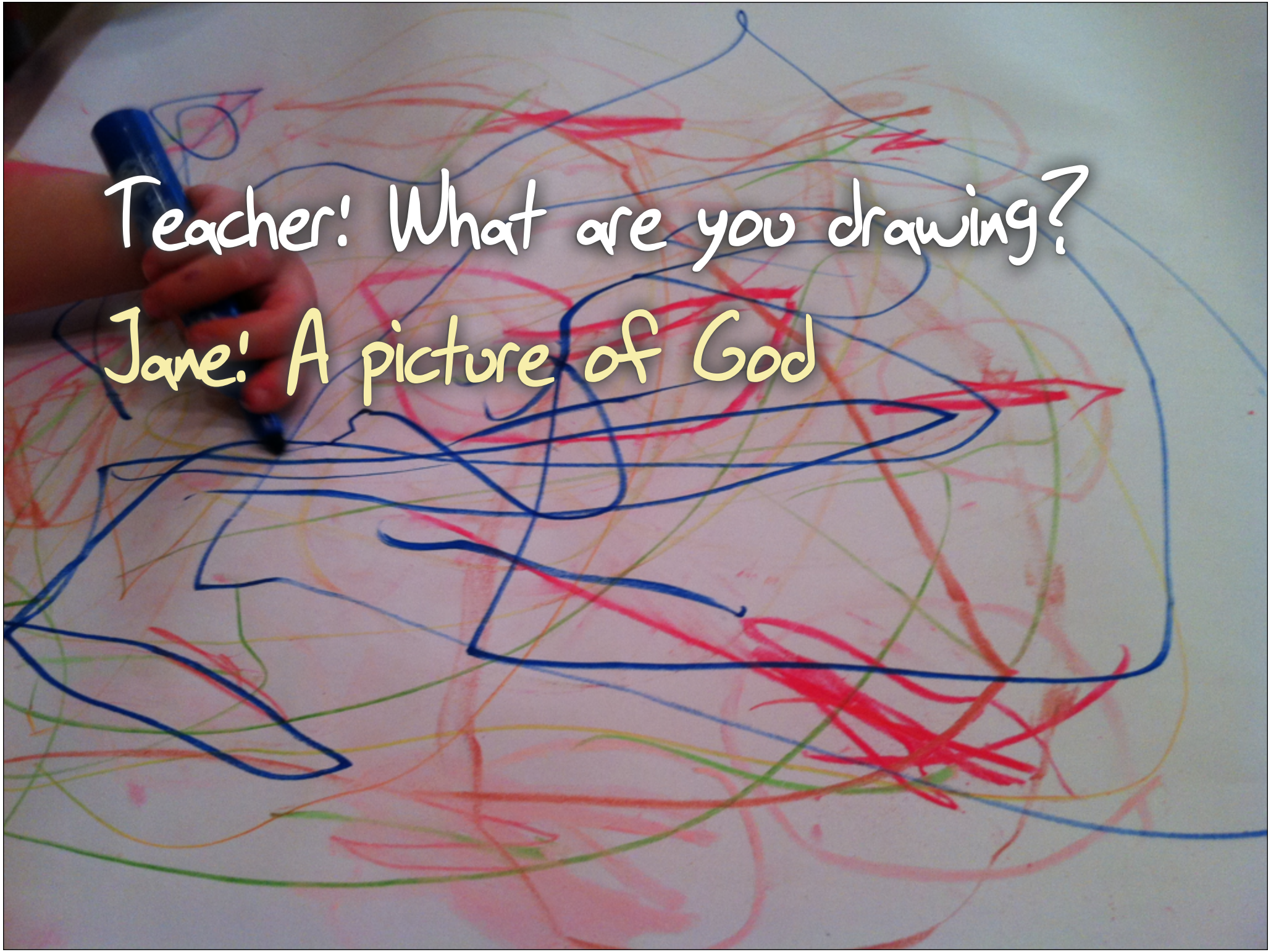
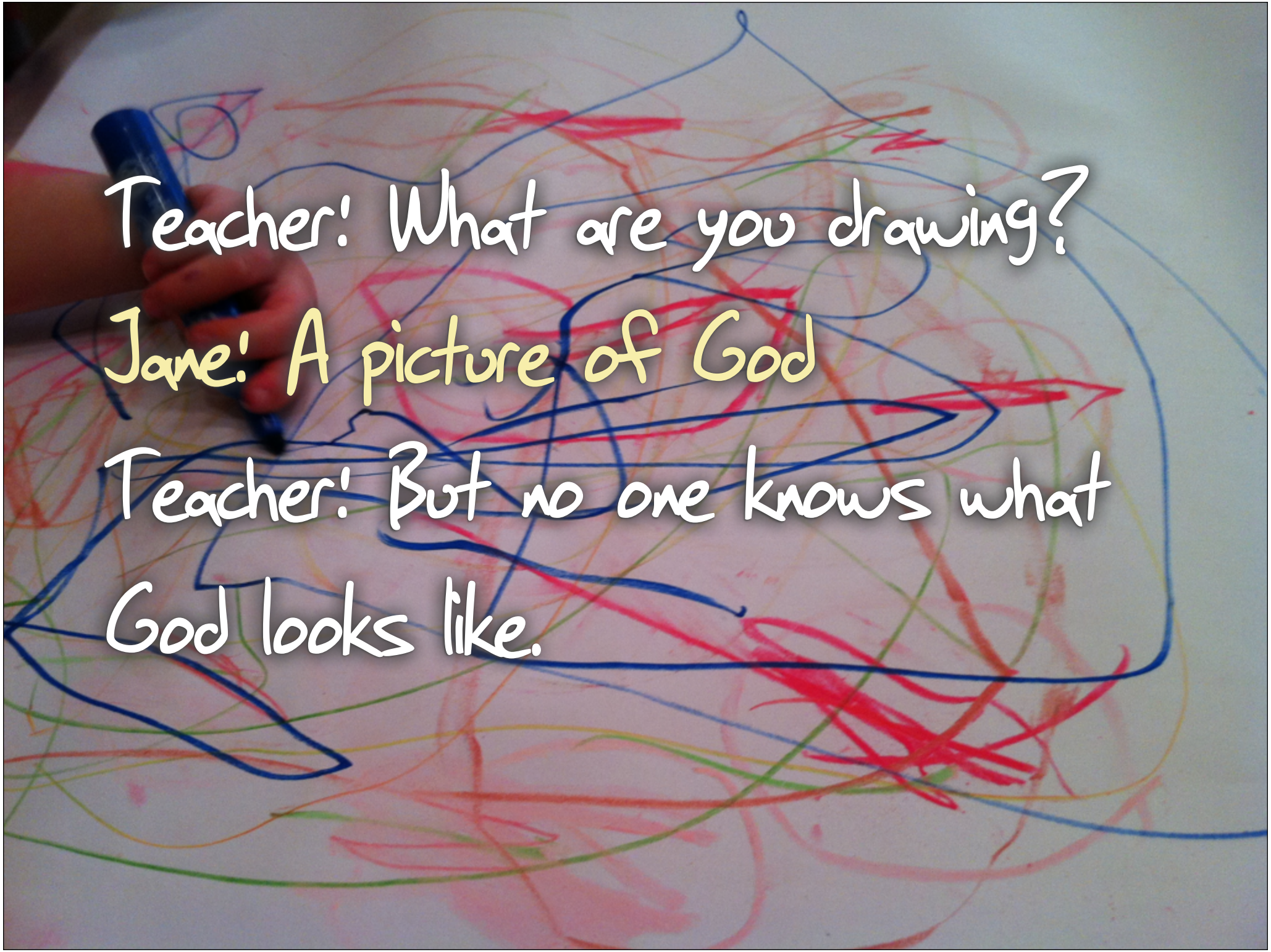
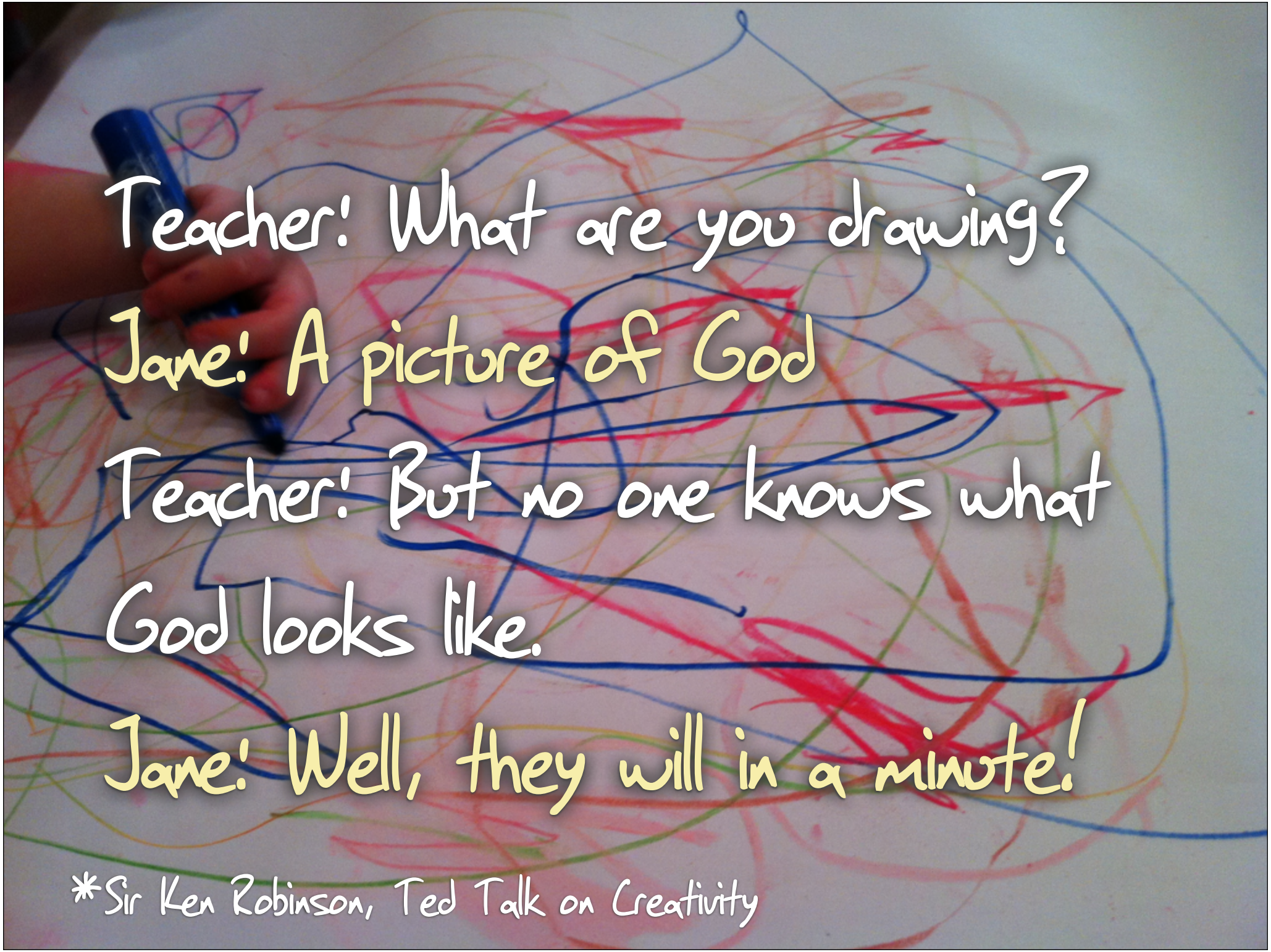


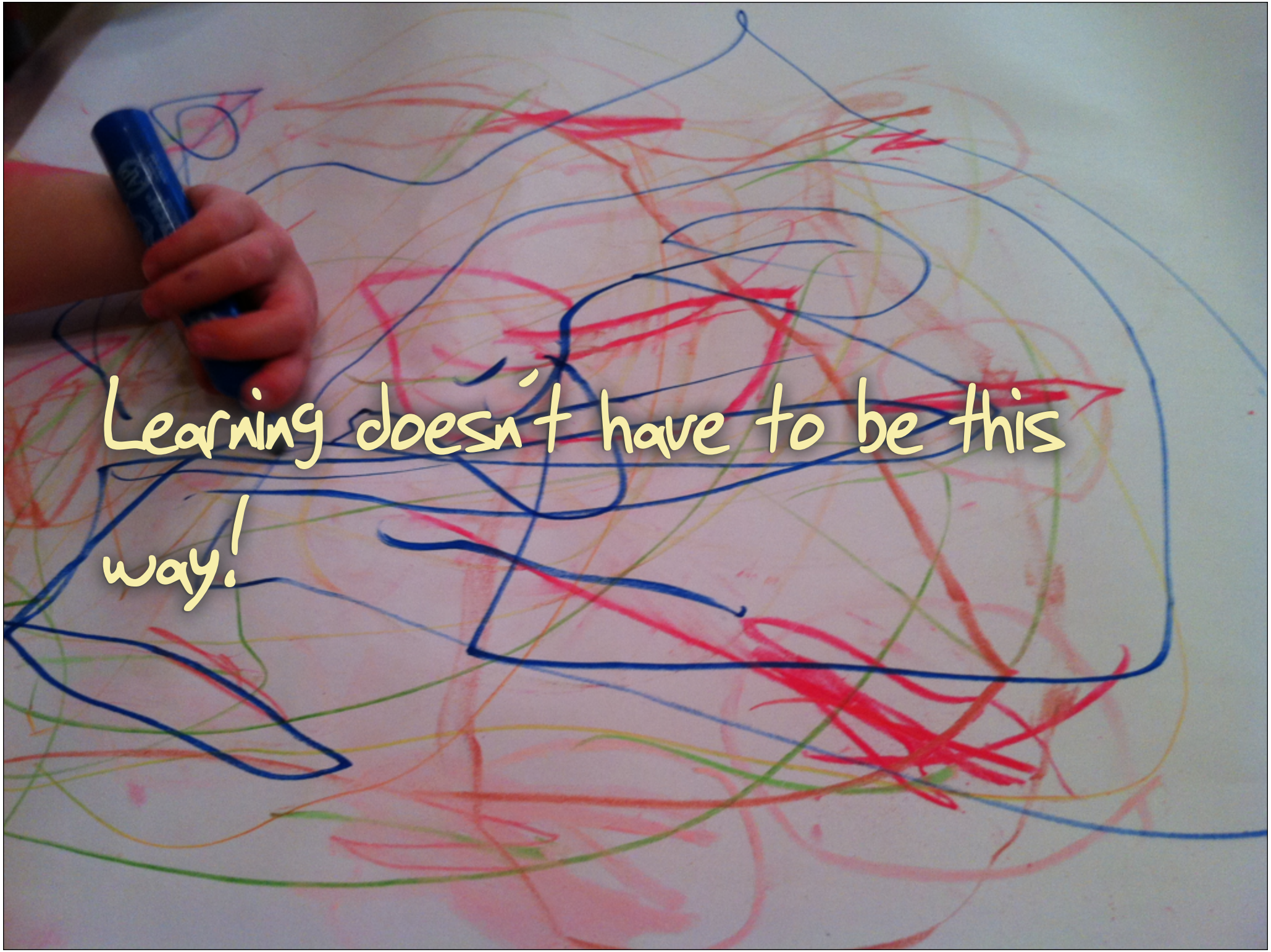

Teacher: What are you drawing?


Teacher: What are you drawing?
Jane: A picture of God


Teacher: What are you drawing?
Jane: A picture of God
Teacher: But no one knows what God looks like.



*Sir Ken Robinson, Ted Talk on Creativity


Learning doesn't have to be this way!

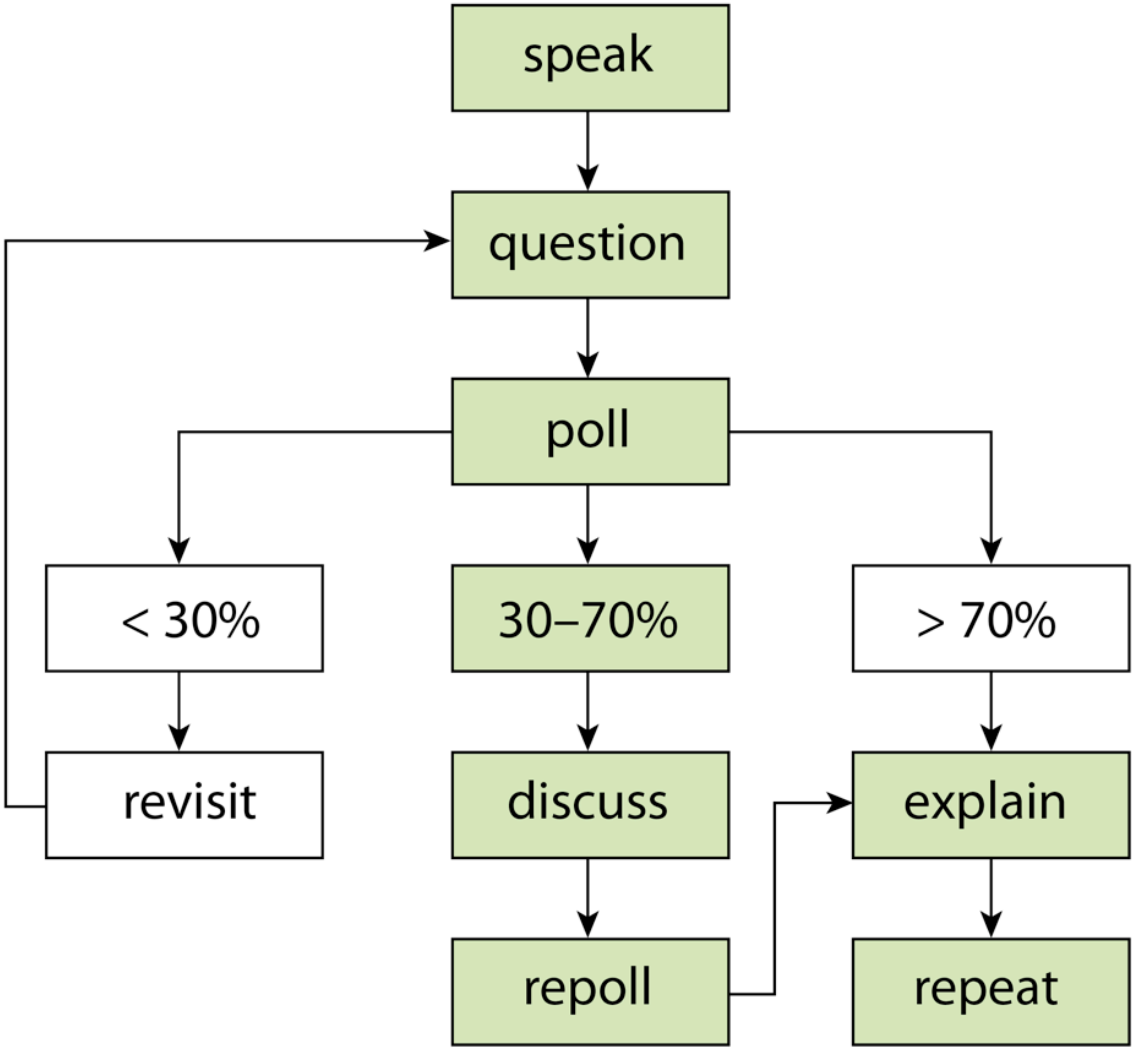
Expert learners and effective learning

- Metacognition
- Retrieval practice
- Effortful retrieval

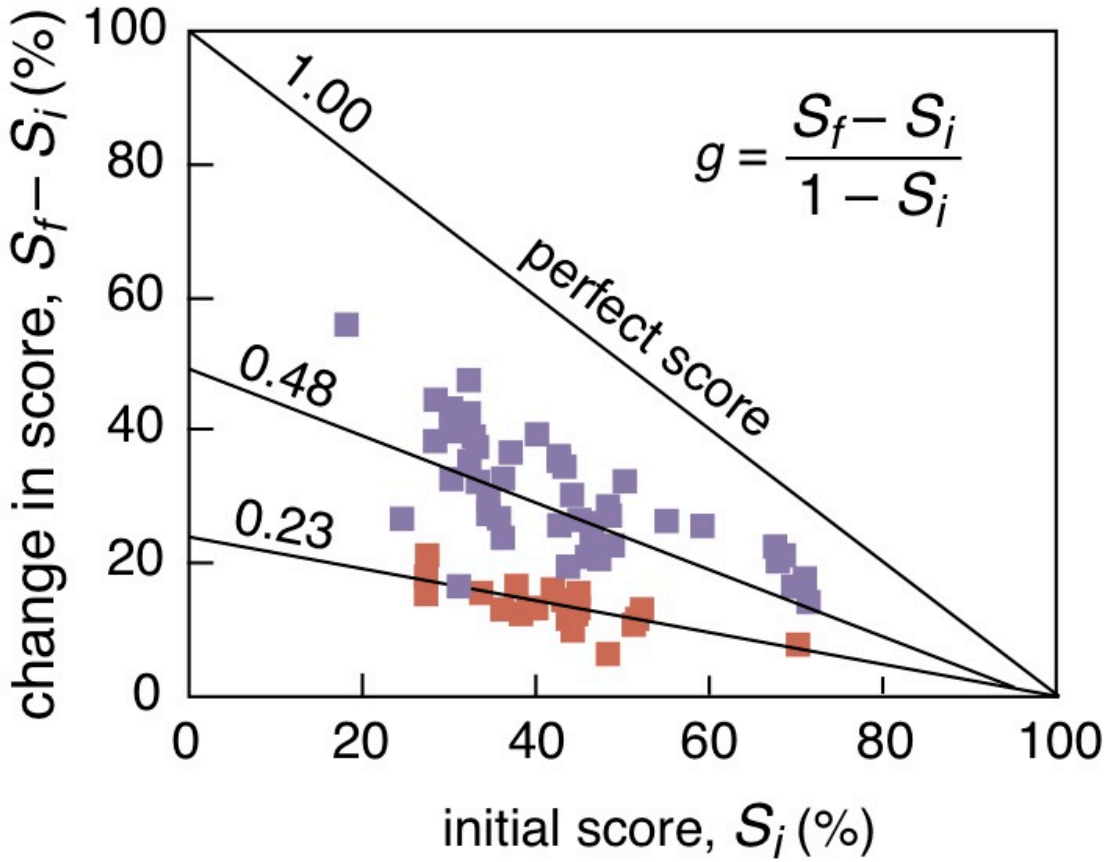
Interactive teaching

- Instructor poses a question to the class
- Could be knowledge-based, conceptually-based, or opinion-based
- Responses are solicited from **all** students
- Results used to inform instructional direction and strategy

Peer instruction



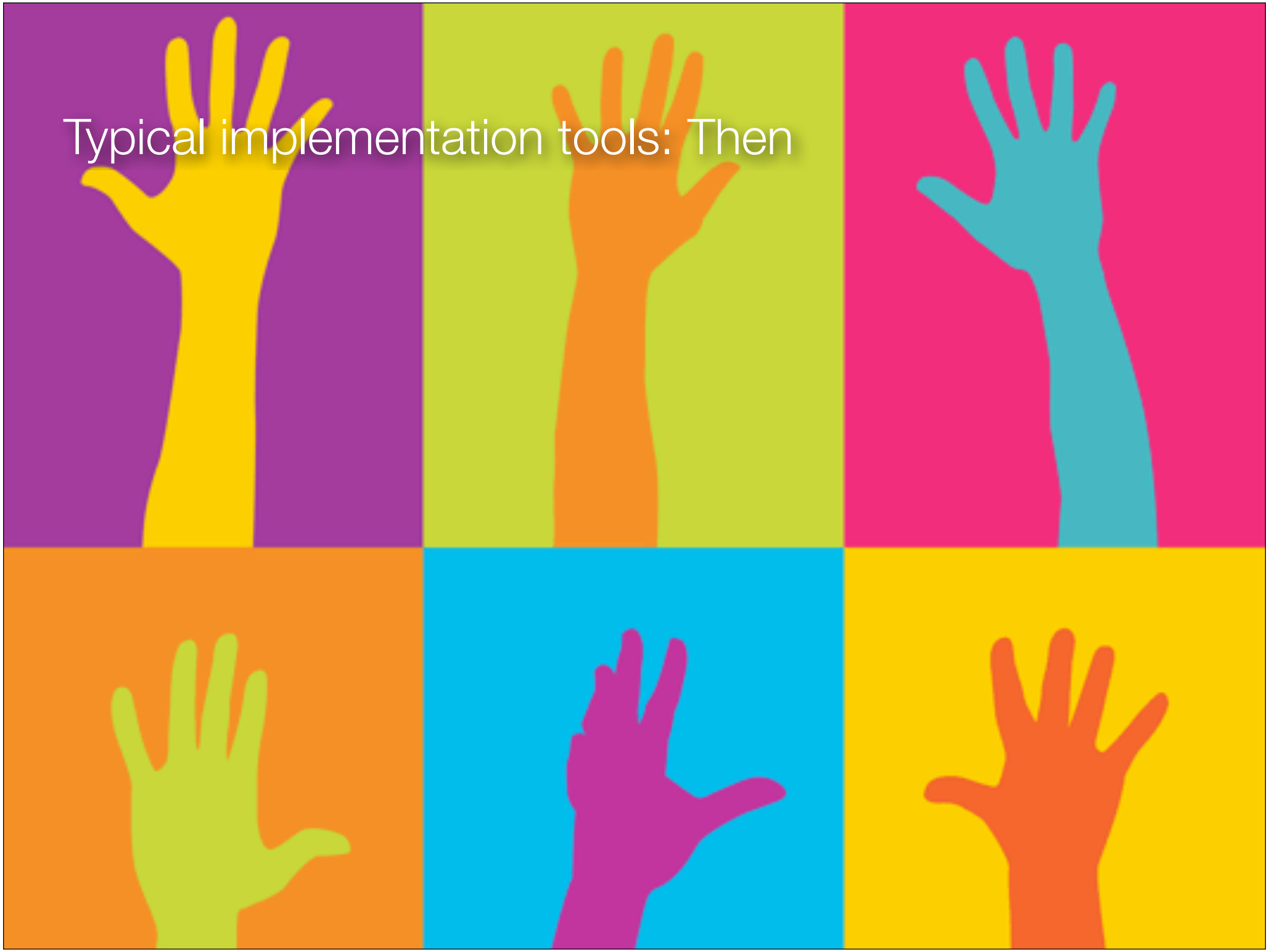
It works



Interactive learning
Traditional lecture

Source: Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *Am. J. Phys.* 66(1).

Typical implementation tools: Then



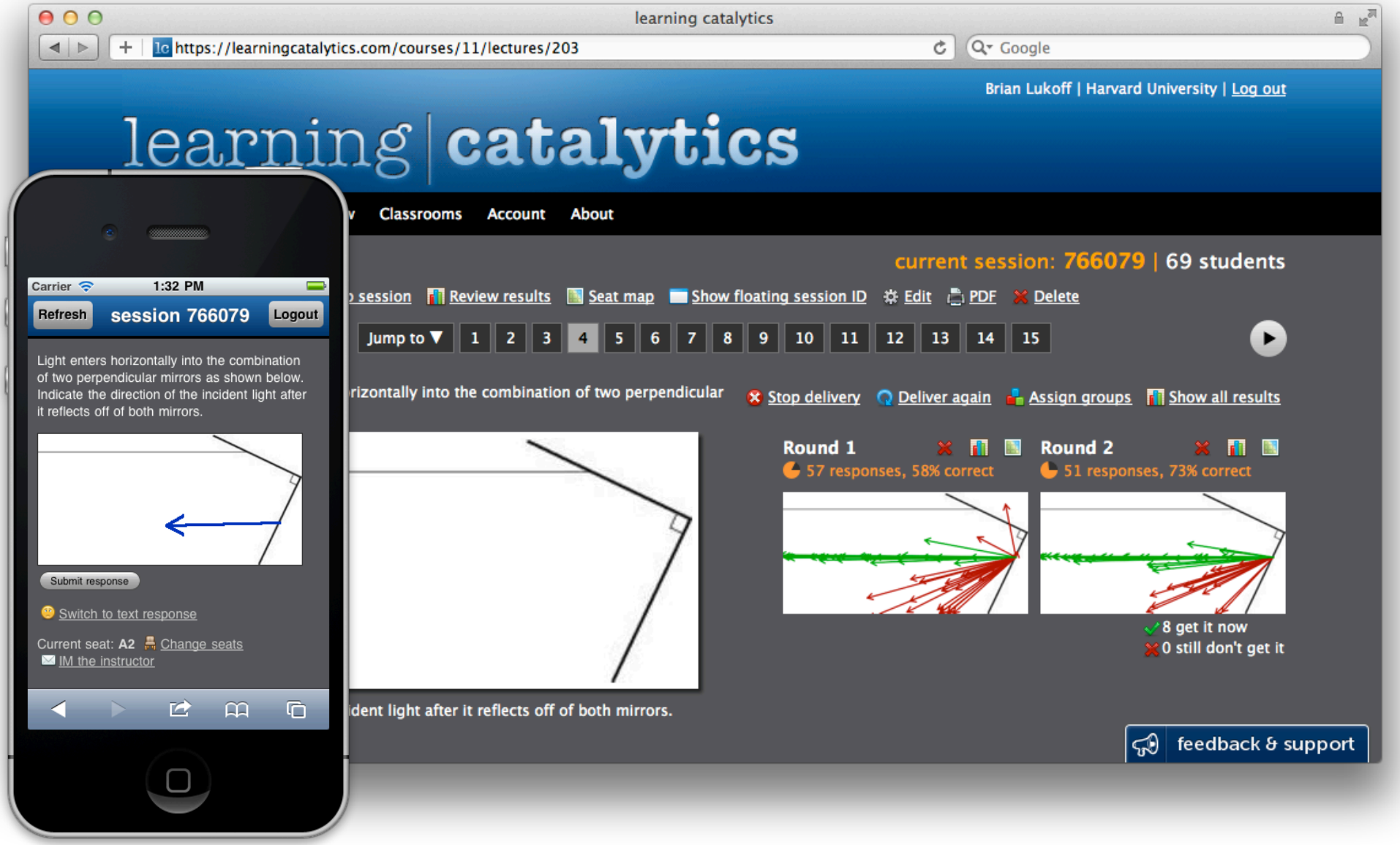
Typical implementation tools: Now

What's wrong with what we have?

- Largely restricted to multiple-choice questions
- Limited productivity of some peer instruction groups
- Not always easy to make use of student response data
- And why should students be using clickers when they all are already bringing other, more powerful devices to class?

Learning Catalytics: A new cloud-based platform for interactive teaching

Many different constructed-response question formats (graphical, numerical, algebraic, textual, ...)

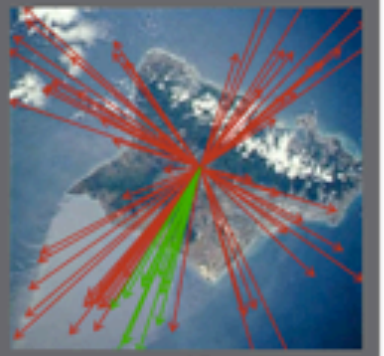


4. direction This image shows Oahu as seen from the Space Shuttle. The image provides several clues about the direction of prevailing winds in Oahu. Indicate this direction by drawing an arrow on your screen.

Deliver | Show all results

Round 1

77 responses, 16% correct



17 get it now

3 still don't get it

1. highlighting What do you see as the most important part of this Shakespeare sonnet?

Stop delivery | Deliver again | Assign groups | Show all results

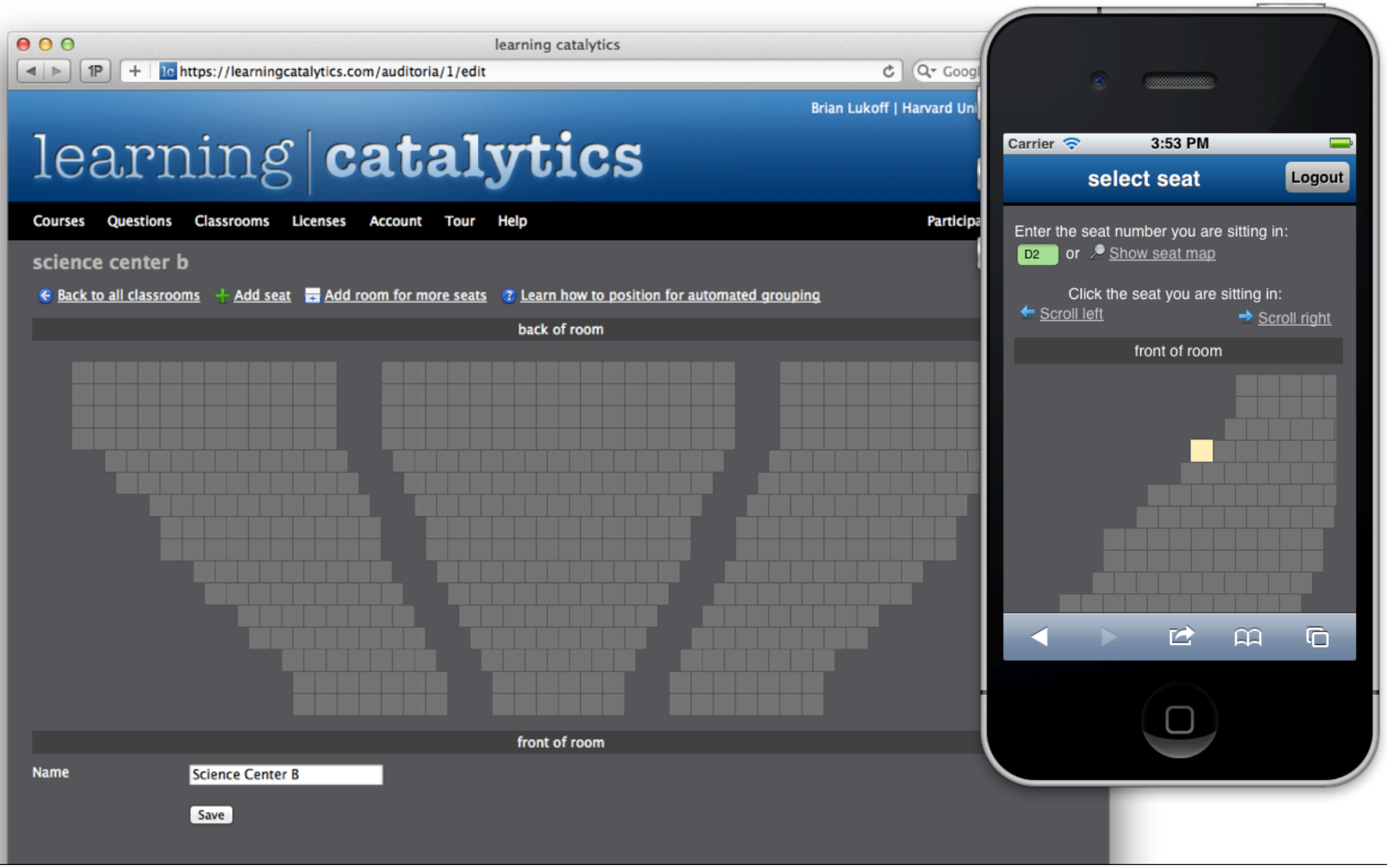
For shame! deny that thou bear'st love to any,
Who for thyself art so unprovident.
Grant, if thou wilt, thou art beloved of many,
But that thou none lovest is most evident;
For thou art so possess'd with murderous hate
That 'gainst thyself thou stick'st not to conspire.

Round 1

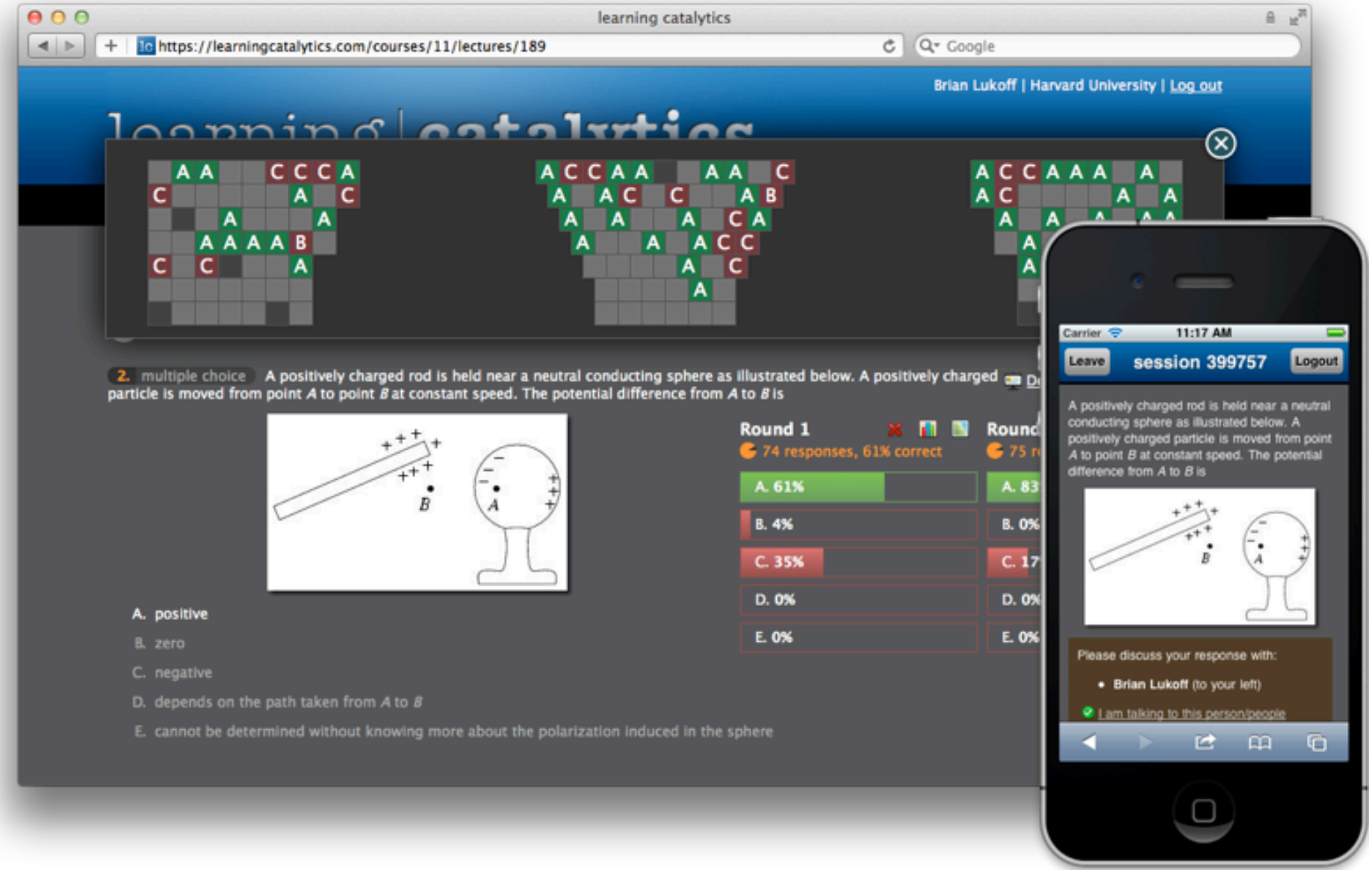
3 responses

For shame! deny that thou bear'st love to any,

Use real-time analytics to generate discussion



Use real-time analytics to generate discussion

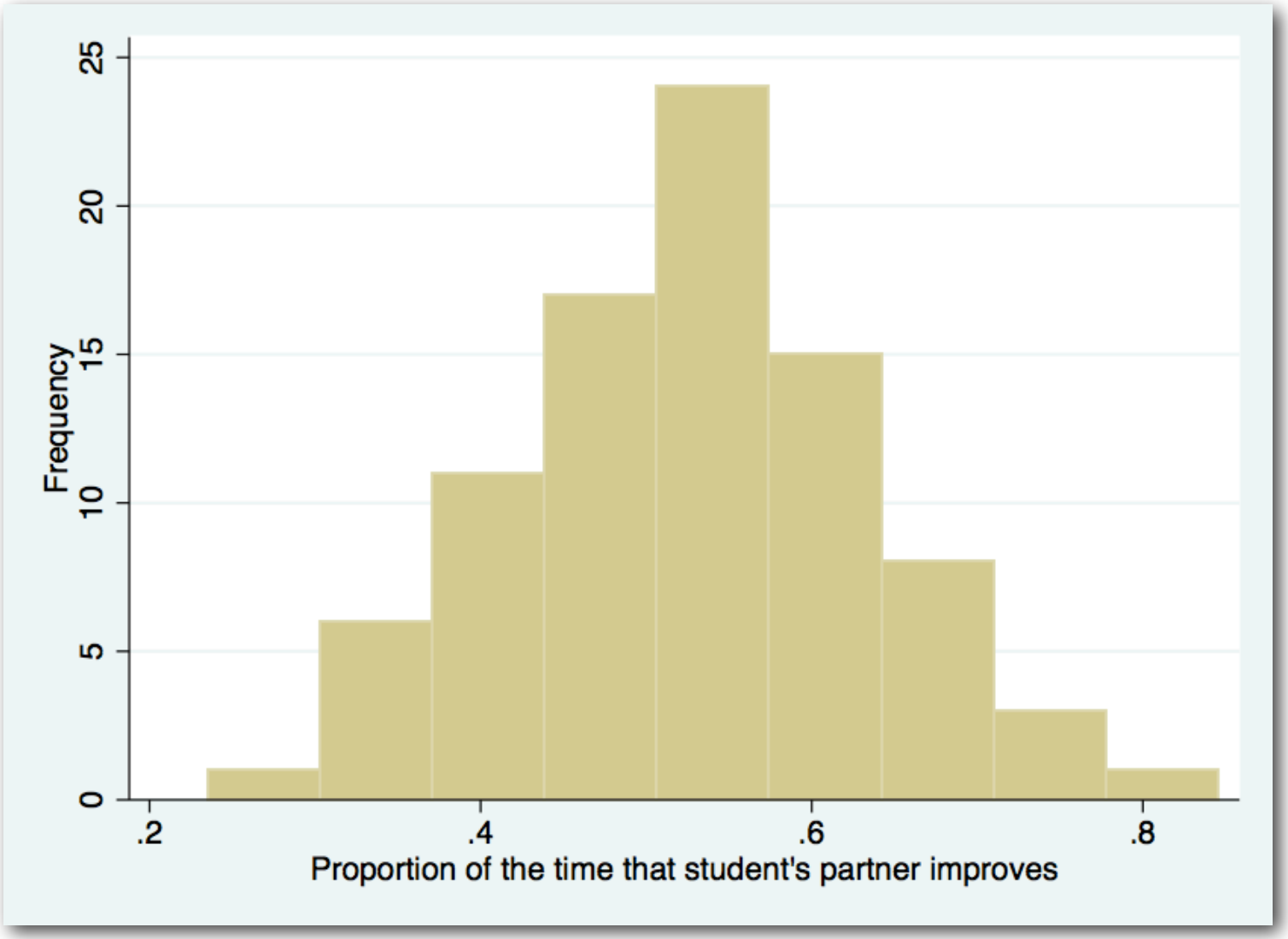


Measuring learner engagement: Finding “natural teachers”

Who among the students are the “natural teachers”?

- When students are engaging in discussions, both learning and teaching occurs
- When a particular student’s partners consistently improve, they are, in a sense, a “natural teacher”
- We can identify these students using the Learning Catalytics data

Who among the students are the “natural teachers”?



Thank you!

Julie Schell
schell@seas.harvard.edu

Brian Lukoff
blukoff@seas.harvard.edu

learningcatalytics.com

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