Exploring the Role of Standardization In Approximations of Teaching Practice

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ETS

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Agenda

- Overview of two related NSF projects using the *Mursion*™ simulated classroom environment

- Example task performance

- Standardization of opportunity
  - What is it?
  - Why does it matter?

Similarities Between Two Projects using Simulated Teaching Experiences

- Performance tasks in the *Mursion*™ simulated classroom environment

- Grounded in Grossman et al.'s (2009) approximations of practice

- Supports preservice teacher (PST) opportunity to practice facilitating **argumentation-focused discussions**

- Cross-disciplinary approach (upper elementary math and science)

- Research focused on documenting and understanding teacher educator (TE) use cases
  - within methods courses
  - with attention to the **cycle of enactment:**
    Preparation → Enactment → Debrief/reflection

Example Enactment– PST Point of View

- PST receives a packet of materials in advance
  - Lesson overview, student background, student work samples, helpful information about the content and the teaching practice
  - Helps PST understand where to start
- PST *plans* the 20-minute discussion
- PST *leads* the discussion individually in the simulator at a pre-scheduled time
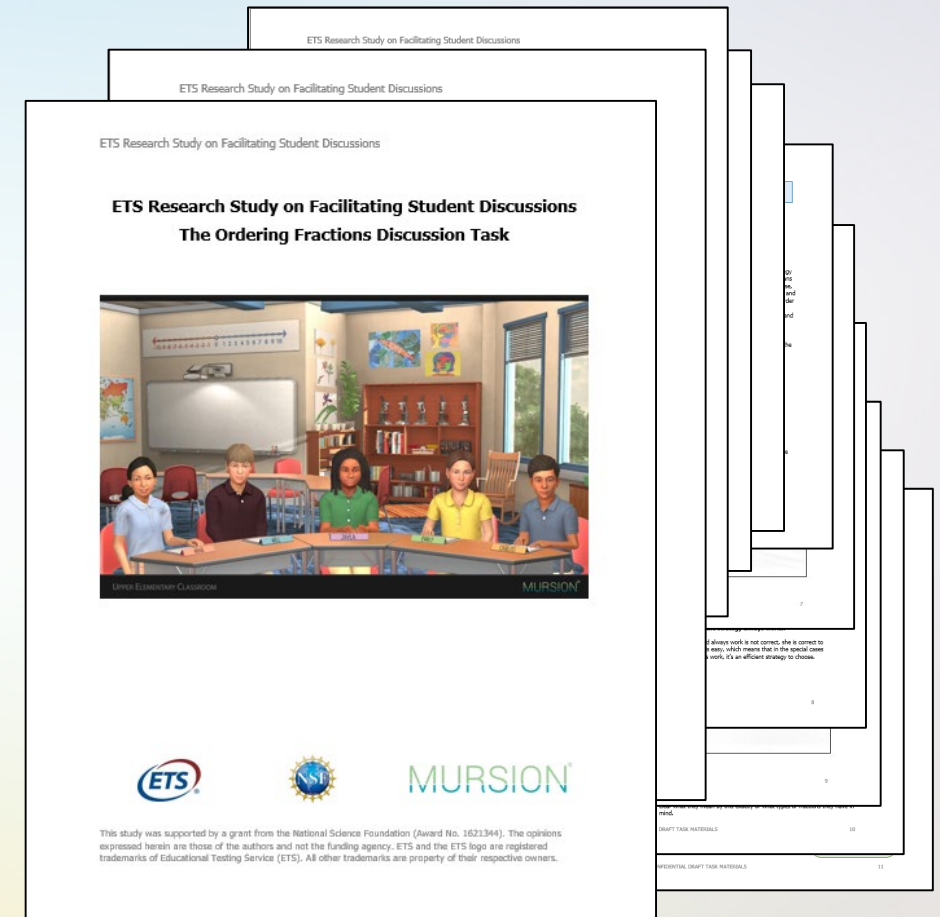
Ordering Fractions

Group Member's Names: Emily and Carlos

Put the following fractions in order from least to greatest.

$$\frac{3}{10}, \frac{9}{10}, \frac{3}{4}$$

$$\frac{3}{10} < \frac{3}{4} < \frac{9}{10}$$

Explain your strategy.

First we compared the fractions to ½. 3/10 is less than ½ and $\frac{9}{10}$ is more than ½. $\frac{3}{4}$ is more than ½ also.

This makes $\frac{3}{10}$ the smallest because it is the only fraction less than ½.

$\frac{9}{10}$ is way bigger than $\frac{3}{4}$ because both are only 1 part away from 1. Tenths are smaller than fourths so that means $\frac{9}{10}$ is missing a smaller piece than $\frac{3}{4}$.

Will your strategy work for any set of fractions? Explain.

No. You can always decide if it is more or less than ½ but some fractions are still hard to compare after that.

ETS Research Study on Facilitating Student Discussions
The Ordering Fractions Discussion Task

Ordering Fractions

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$$\frac{3}{10} < \frac{3}{4} < \frac{9}{10}$$

Explain your strategy.

First we compared the fractions to ½. ³/₁₀ is less than ½ and ⁹/₁₀ is more than ½. ¾ is more than ½ also.

This makes ³/₁₀ the smallest because it is the only fraction less than ½.

⁹/₁₀ is way bigger than ¾ because both are only 1 part away from 1. Tenths are smaller than fourths so that means ⁹/₁₀ is missing a smaller piece than ¾.

Will your strategy work for any set of fractions? Explain.

No. You can always decide if it is more or less than ½ but some fractions are still hard to compare after that.

Group Member's Names: Mina

Put the following fractions in order from least to greatest.

$$\frac{3}{10}, \frac{9}{10}, \frac{3}{4}$$

$$\frac{3}{4} < \frac{3}{10} < \frac{9}{10}$$

Explain your strategy.

I just looked at the numbers. I know that 9/10 is the biggest because it has 9 parts.

So then I had to figure out which fraction is the smallest. 3/4 and 3/10 both only have 3 parts. I know that 3/4 is smaller than 3/10 because 4 is smaller than 10.

Will your strategy work for any set of fractions? Explain.

Yes, it will. It is very easy to look at the numbers to see which is bigger or smaller.

Comparison of Studies

Study 1:

- More intensive use of simulation (3 cycles); fewer TEs (3).
- Provided:
  - Video recordings
  - Individualized feedback (for PSTs)
  - Scores for each PST (for TEs)
- Research focus on developing tasks, measuring PST learning (pre/post)

Study 2:

- Research focus on TE adaptation of existing tasks within Covid-induced course constraints
- Eight TEs; single cycles
- Videos were the only record of practice supplied to TEs and PSTs

Some Affordances of Simulation

- Safe practice space for novices
  - And an available practice space during Covid!
- Can manipulate the teaching challenge to pedagogical purpose
  - Unlikely to have opportunities to lead argumentation-focused discussion
  - Reduction of classroom management challenge
- Generates video artifacts (without student privacy concerns)
- *Standardization* can have unique affordances

Standardization of Opportunity

- Standardization of opportunity is **not** scripted or identical interactions.
- "*Standardization of opportunity* refers to the ways in which the task situation is designed and enacted so that each PST receives similar opportunities to engage with the key student ideas during the discussion" (Mikeska et al., 2019)
- Approximates something that **cannot** occur in real classrooms; each PST has entered
  - the same classroom
  - on the same day
  - with the same students
  - and the same challenges
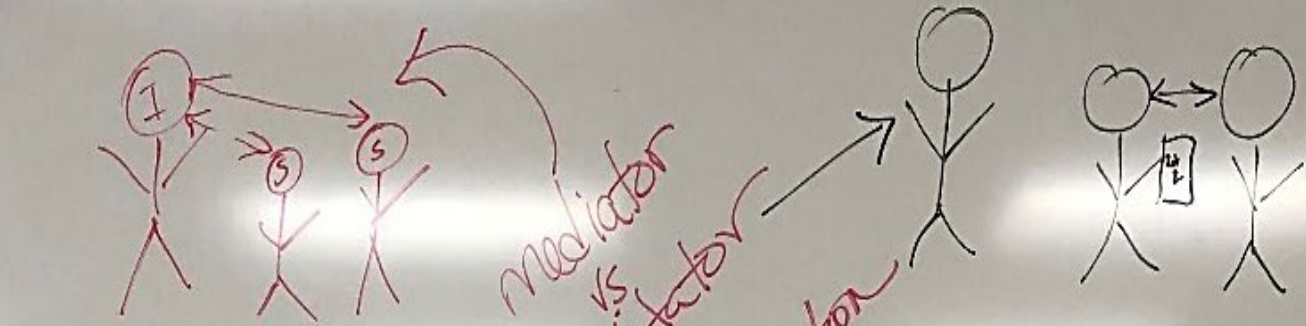- Standardization is expensive

Why does standardization matter?

- Standardization supports PST collective reflection

Why does standardization matter?

Example: Study 1, TE3 Observation Notes

Why does standardization matter?

- Standardization supports PST collective reflection
- Standardization supports TEs in comparatively evaluating PST performances
  - Limits contextual variability
  - Allows for the examination of practices that might not otherwise have been available to observe
  - Allows for noticing class-wide or individual patterns of performance

Why does standardization matter?

"[discussing color coded scores across three time points] I mean, it's like red, yellow, green when you look from S2 to S4, which is really interesting. So it's a nice shorthand way for me to sort of get a sense of growth rather than just digging through their reports. So I thought that was extraordinarily helpful for me to get a sense of that... It helped me to try to narrow what my discussion, what my debrief would be about because you can't talk about everything, right? I had an hour to try to debrief and so that document helped me with deciding what I was going to try to discuss" (Study 1: TE2)

Why does standardization matter?

- Standardization supports PST collective reflection
- Standardization supports TEs in comparatively evaluating PST performances
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  - Allows for the examination of practices that might not otherwise have been prompted
  - Allows for noticing class-wide or individual patterns of performance
- Standardization supports TE reflection and adjustment

Why does standardization matter?

"As far as watching them [the videos], the other thing we learned as a cohort is how we need to… We thought we had put discussion and discussion prompts, we thought we had embedded that throughout all of our courses, but we were like, 'Oh, yeah, they're not really asking… Like, they're not following up on kids' questions and helping them make sense of their ideas. And this is something we need to do more of.'" (Study 2, TE08)

Why does standardization matter?

- PSTs can compare experiences and reflect collectively
- TEs can evaluate PST performances comparatively knowing the challenges were similar
  - Limits contextual variability
  - Allows for the examination of practices that might not otherwise have been prompted
  - Allows for noticing class-wide or individual patterns of performance
- TEs can reflect on their own teaching and adjust to PST needs
- Can provide meaningful *measures* of PST skill

Thank you!

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