



A COMPARATIVE CASE STUDY ON THE COMPLEXITIES OF RESPONSIVE TEACHING

BACKGROUND

- Responsive teaching refers to practices that elicit, respond to and take up students' thinking to connect to the math itself.¹
- Number Talks are short lessons utilizing mental math to transform student perspectives on math from memorized answers to investigated processes.²
- This research stems from a larger study on 11 early career teachers from the Graduate School of Education invited for an online discourse community, in which they gave and received feedback on Number Talks to refine responsive teaching practices.

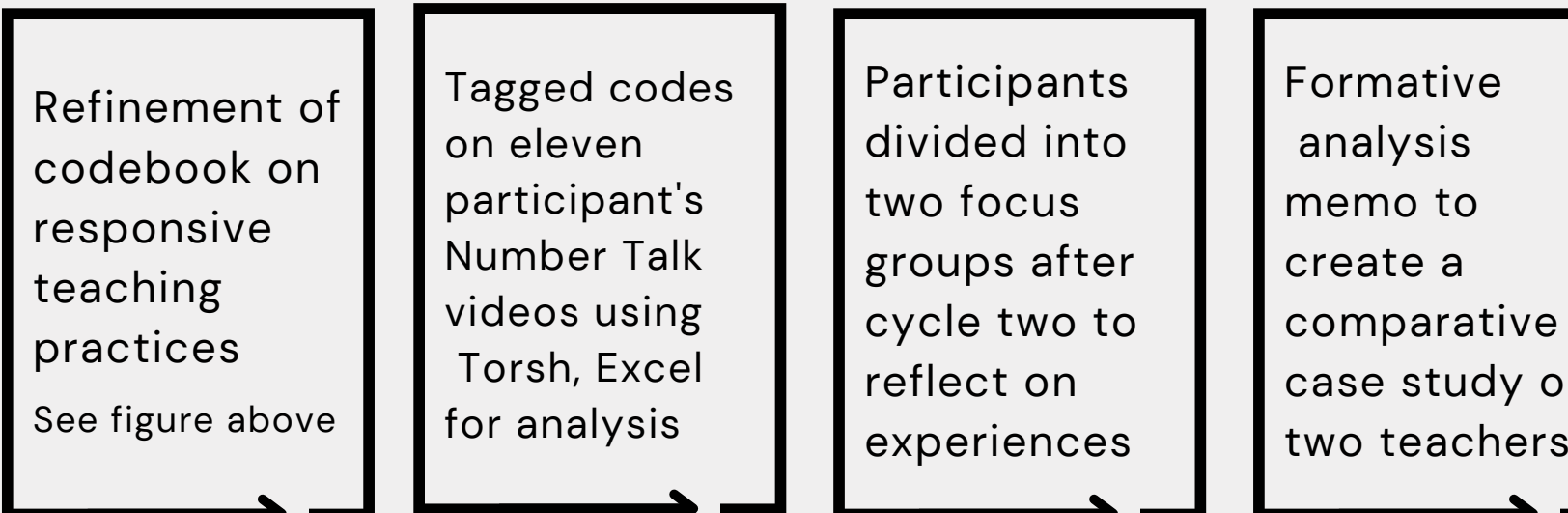
This is a comparative case study on the decomposition of two early career teacher's development of practice asking the following:

- (1) What do early career teachers **focus** on in their instructional routines and inquiry group participation?
- (2) What are early career teachers looking to **gain** from inquiry group participation?

METHODS

Coding Scheme for Dialogic Practices in Number Talks³

Eliciting student thinking	Orienting to others' ideas	Orienting students to the math
E1 Asks a student to describe a strategy for getting the answer	OI1 Asks students to restate others' thinking or strategies	OM1 Connects student ideas to previous class work
E2 Probes for student thinking by asking for further explanation of the strategy	OI2 Elicits agreement or disagreement	OM2 Makes explicit key math ideas surfaced in the discussion of student strategies
E3 Asks questions to surface understanding behind the strategy	OI3 Has students prove or explain other students' thinking	OM3 Poses deliberate question on key math ideas emergent from students' strategies

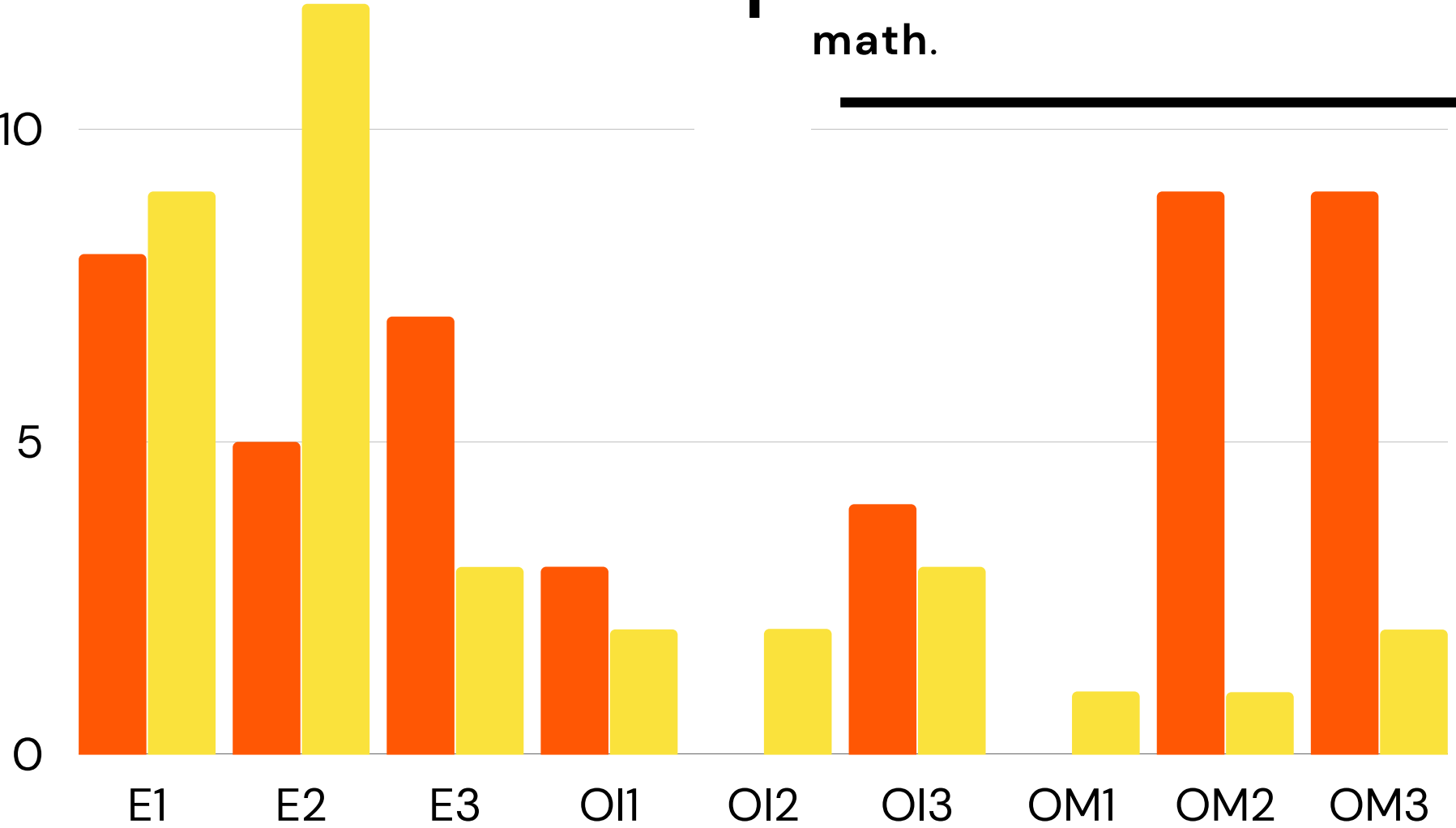
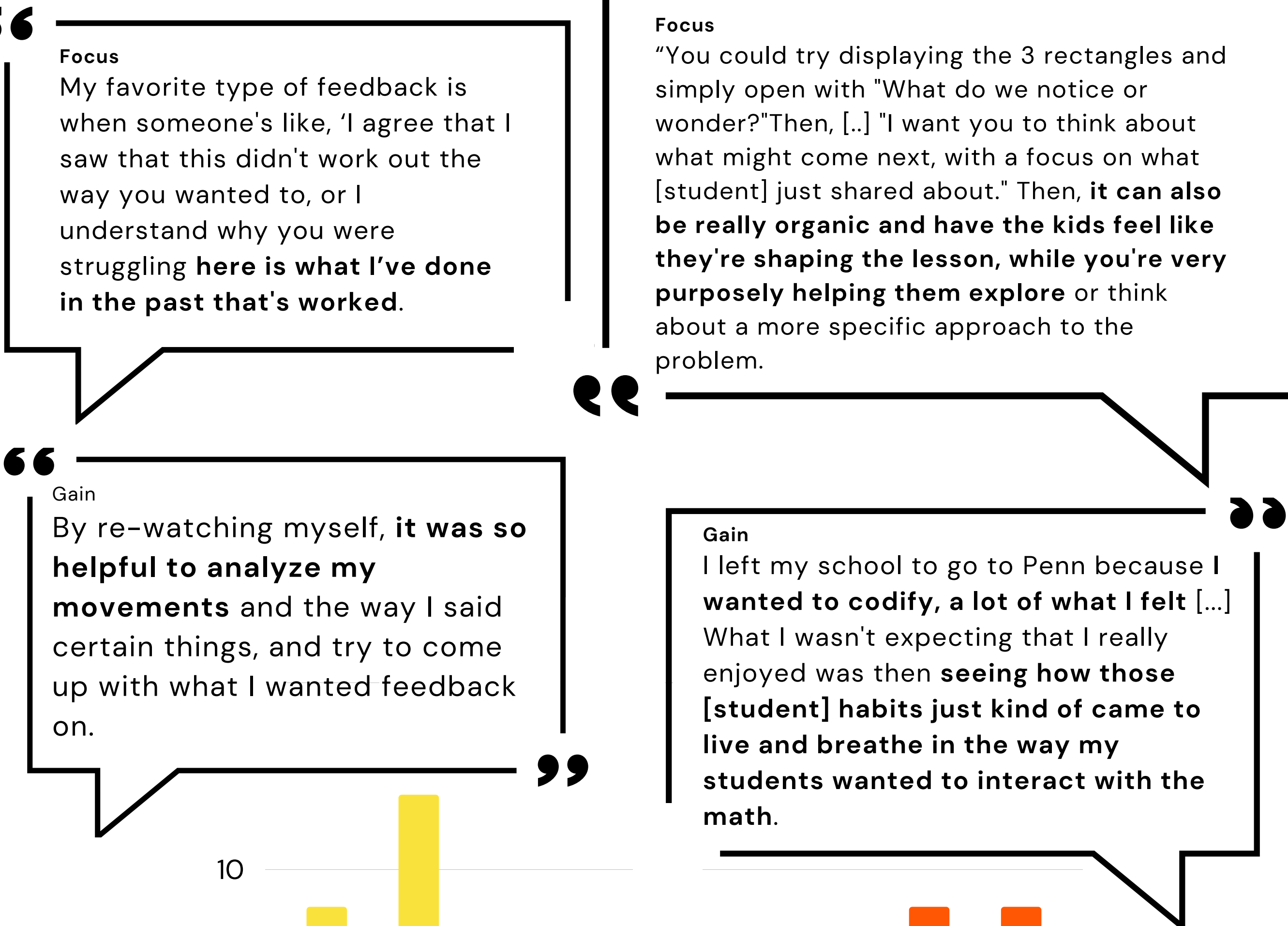


Results

Kayla and Holly are both elementary school teachers from the Urban Teaching Apprenticeship Program (UTAP) with varied experience levels and different developmental stages of responsive teaching implementation. Below are their thoughtful reflections of experiences within the study, and a graph that compares their use of responsive teaching practices in Number Talks.

Kayla

Holly



A graph on Kayla versus Holly's responsive teaching moves during class.

CONCLUSIONS

The graph shows a teacher learning continuum in which Kayla is still learning how to elicit student thinking understanding and responding to their ideas, whereas Holly is more developed in practice because she is able to make connections to the math and use that in orienting students to the math itself and to each other.

Kayla's teaching moves used level 1-2 codes heavily focused on eliciting student thinking. **Kayla focused on learning from others and using the decompositional nature of self-reflection to put vision into practice while hoping to gain a repository for those reflections to develop responsive teaching moves.**

Holly's teaching moves used level 2-3 codes heavily focused on orienting students to each other's ideas and mathematics. **Holly focused on giving advice to others and encouraging students to take the lead in exploring mathematical concepts while hoping to gain insight into patterns of student learning beyond in-the-moment reactions.**

DISCUSSION

Findings highlighted the benefits of decomposing early career educator's responsive teaching practices despite different focuses (learning versus guiding), gains (teacher confidence versus classroom insight), and approaches to responsive teaching (eliciting versus orienting)

This study suggests that collaborative reflection on practice allows early career educators, regardless of their place on the teacher learning continuum, to develop their responsive teaching, even if their practice, goals or takeaways differ. A discourse community can provide enhanced awareness, structure among the ambiguous, and a sense of purpose.

ACKNOWLEDGEMENTS

Study funded by the Penn Undergraduate Research Mentorship Program. Special thank you to Dr. Janine Remillard, mentor Lara Condon, and GSE team.

References: 1. Ebby, Remillard, & Goldsmith-Markey (2021) Learning to teach responsively: The power of giving and receiving feedback on video records of practice 2. Parrish (2011) Number Talks Build Numerical Reasoning 3. Walcoe et al. (2019) Video tagging as a window into teacher noticing 3. Ebby, Remillard, Condon, et. al. (2022) Coding Scheme for Dialogic Practices in Number Talks. | Other: Borko et al., (2006) Video as a tool for fostering productive discussions in mathematics professional development. Erickson (1986) Qualitative Methods in Research on Teaching. Hammerness et al., (2005) How teachers learn and develop. Garcia et al. (2021) Recording Student Thinking in a Mathematics Discussion. Ravitch and Carl (2021) Qualitative Research: Bridging the Conceptual, Theoretical, and Methodological. Robertson et al. (2016) What is responsive teaching?