"Bringing New Things To Light": An Emerging Process Model for Insight-Based Professional Development

Ethan Rubin, M.Phil & Elizabeth A. van Es, Ph.D
School of Education, University of California Irvine

Introduction and Theoretical Framing

Teacher noticing, which encompasses how teachers attend to and interpret a wide range of cues in the classroom, is an essential aspect of teaching practice and requires intentional cultivation throughout a teacher's career (Mason, 2009). Professional development (PD) is one potential avenue for developing teacher noticing.

A PD program can be characterized by its pedagogical approach, which falls on a spectrum of teacher agency in terms of both content and enactment (Borko, 2004; Kennedy, 2016).

- Insight-based approaches (Kennedy, 2016) are less constraining and align with an inquiry stance in which teachers generate their own learning (Cochran-Smith & Lytle, 2009; Mason, 2009).
- Due to the highly variable and personal nature of teacher noticing (Erickson, 2011; Mason, 2009), PD intended to develop teacher noticing calls for an insight-based approach.

Design-based research provides a lens on how to create collaborative environments and relationships that facilitate the generative processes of insight and concept formation. (Bang & Vossoughi, 2016; Engeström, 2011; Penuel et al, 2011).

Research Questions

1. How do teacher participants engage in and experience collaborative inquiry and design as a generative process for teacher learning?
2. What conditions and practices do participants experience as worthwhile for their learning, and how do those features relate?
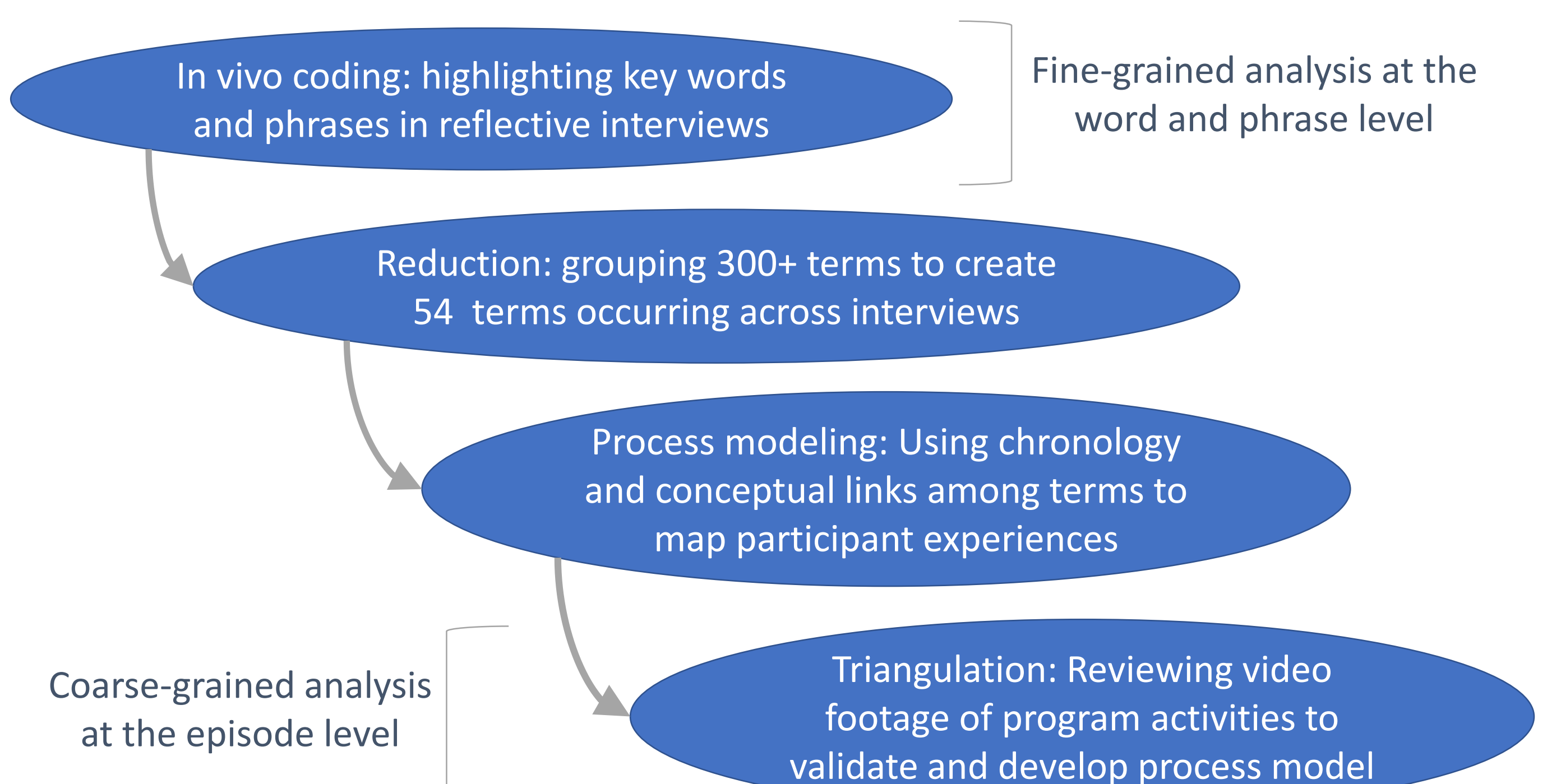
Study Context

CoATTEND: Multi-year PD program with teachers and community youth leaders to co-develop teacher noticing for equity in mathematics classrooms
Participants: Secondary mathematics teachers (n = 4) and community leaders (n = 3) in a local school district
Components and Format: Participatory action research involving summer institutes, video-based data analysis, co-writing, and co-designing professional learning and teacher education experiences

Data and Analytic Approach

Reflective Interviews (n = 6)	Conducted one-on-one, averaging 1 hour. Retrospective on the PD program to date
Noticing Interviews (n = 22)	Conducted one-on-one, averaging 1 hour. Collaborative analysis of classroom video
Team Meetings (n = 28)	Included all participants, ranging from 1 to 3 hours. Reflection activities, collaborative analysis, design

Fine-grained analysis at the word and phrase level

In vivo coding: highlighting key words and phrases in reflective interviews

Reduction: grouping 300+ terms to create 54 terms occurring across interviews

Process modeling: Using chronology and conceptual links among terms to map participant experiences

Triangulation: Reviewing video footage of program activities to validate and develop process model

Coarse-grained analysis at the episode level
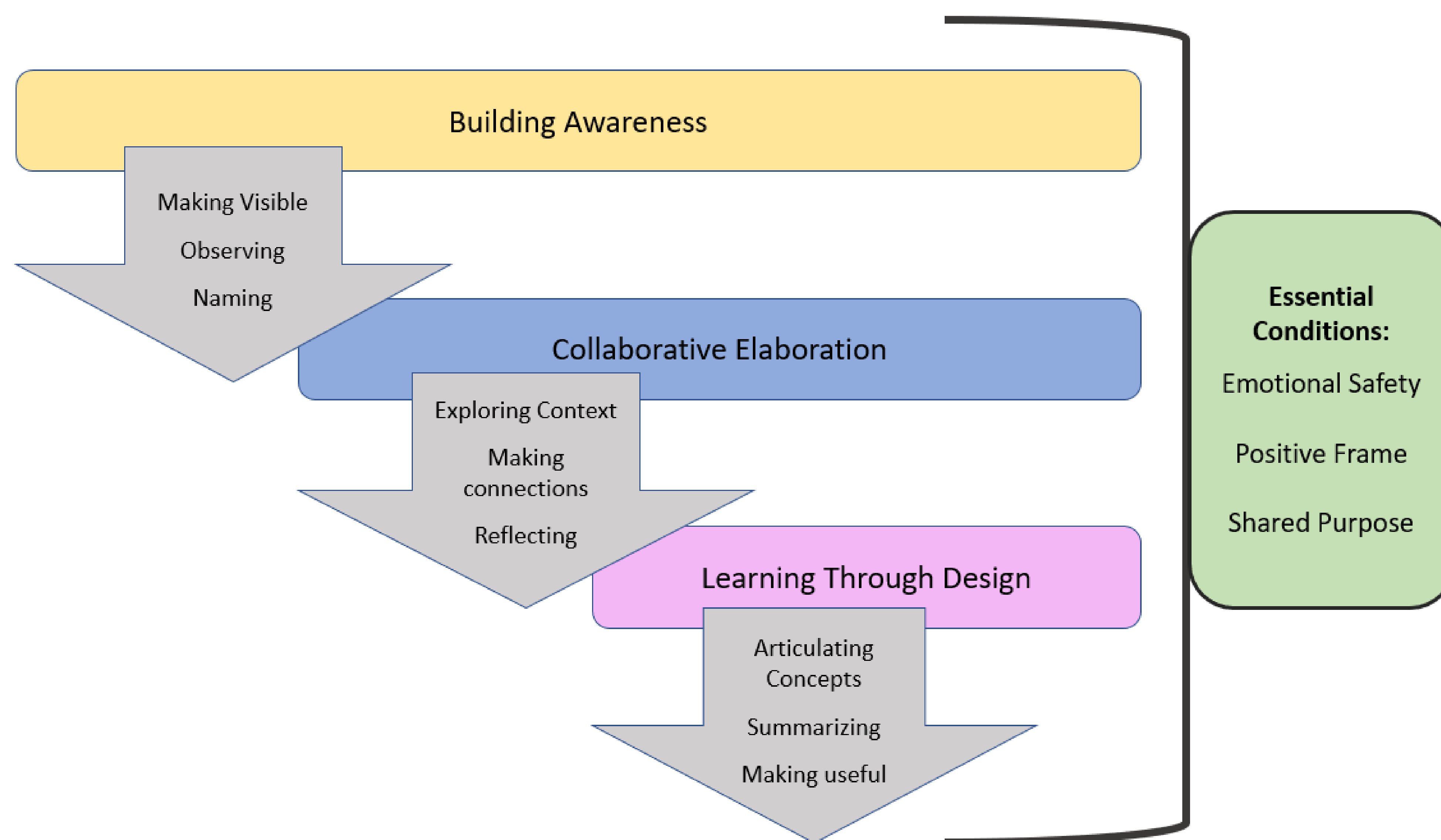
(Saldaña, 2013)

Findings

Model Key:
Green: Necessary **conditions** for the process to unfold.
Gray: Core **practices** by which participants engaged with concepts, tensions, and relationships.
Yellow, Blue, & Pink: Stages of the evolving process, which demonstrate **how those features relate** to form, deepen, and articulate new concepts and understandings.

Building Awareness

Making Visible
Observing
Naming

Collaborative Elaboration

Exploring Context
Making connections
Reflecting

Learning Through Design

Articulating Concepts
Summarizing
Making useful

Essential Conditions:
Emotional Safety
Positive Frame
Shared Purpose

Empirical Support: Key Statements from Reflective Interviews

	Teacher 1	Teacher 2	Teacher 3	Teacher 4
Essential Conditions	This grant was something I was already interested and passionate about, and you weren't going to force me in a different direction. I couldn't just keep my history private. I had to be open to that vulnerability in a way that I'd never done before.	I was a little uncomfortable because I didn't know exactly what I was getting myself into or what I was doing. I still am grappling with a lot of the pieces, but I'm slowly getting a better idea.	We're math people, we're not touchy-feely, we're not emotional. It was out of my comfort zone at the time, I had to open up more than I normally do. A lot of teachers are very nervous about being critiqued… But I never felt that with this group.	It wouldn't happen the same with my department because there's a longstanding distrust of each other. I was okay with them because they are also going through it, so that made it less stressful. I'm never stressed about sharing with this group.
Building Awareness	We always say, "Oh yeah, I could take a video of my class and look at it," but what am I looking for? One of the things that I like most has been that third party perspective on what's going on.	Sometimes I forget all the inner workings of teaching. I don't think about all the little steps, and I didn't realize I'm multitasking and thinking about kids on so many levels. Which is why I think the noticing took on so many more layers.	You had done what you did for years and it just became internalized. What I think this process did was externalize it, like bring it out. I think all of us have said, "Oh, I didn't know I was doing that." So, to be able to take that and examine it and fine tune it was amazingly helpful.	Most teachers are doing things that we're looking into, but we don't realize we're doing them. When you get in the groove of things, you just focus on moving forward. But when somebody else is looking into your environment, it informs you on things that you could have control over.
Collaborative Elaboration	It wasn't that I didn't know my history, but I hadn't articulated it or made the connection with how my historical self impacted my work. Looking at that, which was painful at times, was the largest impact.	I don't talk about teaching practices with others in that way. We talk about very simple things, but nothing this deep, so that was an opportunity to reflect deeply and I learned a lot from it.	I love having the whole group. Everybody had input and bouncing ideas off each other. We come together and create something that you couldn't create alone.	You have to build a broader context of the work, you can't just do the noticing videos in isolation. You have to build the knowledge base of: What's noticing? How do you position? What's historically happening in educational systems? Put that into context.
Learning through Design	It really started to honor different voices and perspectives. We got to step in and say, "that is something that I feel strongly about and I think I can communicate clearly about." Then things really started to hum.	In the planning we asked what we need to help our future teachers see what we do in our classrooms. It put it in a practical sense to me. It's hard for me to grapple with theoretical. I think doing the PD helped me really visualize it.	I liked that you guys helped us structure it and then we could add to it, bouncing ideas off of each other. That showed me how I could help. Everyone could put those pieces together and get it done.	The sessions we spent together planning, they summarized what we concluded and packaged our work together. The work led to its own kind of outcomes. We couldn't have determined what they were going to be from the get-go, but they became something.

Concepts developed and articulated by teachers in the CoATTEND process (partial list)

Influence and impact of historical self
Organizing to notice for equity
Navigating potential moments of conflict
Rehumanizing mathematics and teacher-student relationships

Discussion

Insight-based Process Model explicates how the conditions and practices of the CoATTEND PD afford the emergence of new concepts:

- Conditions based in authentic and purposeful relationship building
- Subject matter that is both complex and relevant to teaching practice
- Practices and tools that fit the subject matter and are nuanced and powerful for expansive thinking
- Meaningful design work that demands articulation of new concepts

Formative intervention (Engeström, 2011) provides a framework for understanding this process of developing of new concepts in an institutional context:

- Double stimulation involves the exploration of a problem area (first stimulation) using mediating tools (second stimulation).
- By addressing the problem area of teacher noticing for equity using the mediating tools of collaborative analysis and design, CoATTEND participants developed and articulated new and expansive concepts in teaching practice.
- **Future research**: What role do tensions and contradictions play in developing new insights through inquiry?

Implications for teacher learning:

- Through this process, practitioners become agents in the effort to improve teaching (Kennedy, 2016).
- Positioning teachers as agents in understanding and addressing problems of practice leads to sustained improvement (Penuel et al, 2011).
- **Future research**: Does applying this model to other PD design create the conditions for insight-based teacher learning?

References

1. Bang, M. & Vossoughi, S. (2016). Participatory Design Research and Educational Justice: Studying Learning and Relations Within Social Change Making. Cognition and Instruction, 34(3), 173-193. DOI: 10.1080/07370008.2016.1181879 **2.** Borko H. Professional Development and Teacher Learning: Mapping the Terrain. Educational Researcher. 2004;33(8):3-15. doi:10.3102/0013189X033008003 **3.** Cochran-Smith, M. & Lytle, S. L. (2009). Inquiry as Stance: Practitioner Research for the Next Generation. New York: Teachers College Press. **4.** Engeström, Y. From design experiments to formative interventions. Theory & Psychology. 2011;21(5):598-628. doi:10.1177/0959354311419252 **5.** Erickson, F. (2011). On noticing teacher noticing. In M. G. Sherin, R. Phillip & V. R. Jacobs (Eds.), Mathematics teacher noticing: Seeing through teachers' eyes. New York: Routledge. **6.** Kennedy, M. M. (2016). How Does Professional Development Improve Teaching? Review of Educational Research, 86(4), 945–980. https://doi.org/10.3102/0034654315626800 **7.** Mason, J. (2009). Teaching as disciplined enquiry. Teachers and Teaching: Theory and Practice, 15(2), 205–223. https://doi.org/10.1080/13540600902875308 **8.** Penuel, W. R., Fishman, B. J., Cheng, B., & Sabelli, N. (2011). Organizing research and development at the intersection of learning, implementation, and design. Educational Researcher, 40(7), 331-337. **9.** Saldaña, J. (2013). The coding manual for qualitative researchers. Los Angeles: SAGE Publications.