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“Bringing New Things to Light”: Examining a Process of Insight-Driven Teacher Learning

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Abstract: Effective teaching relies on practices of reflection and inquiry that must be cultivated throughout teachers’ careers. Professional development (PD) can support those practices by positioning participants to develop and build on insights. Using data from a PD program focused on teacher noticing for equity, we draw on practice theory to identify the process and associated practices that emerged through participation in collaborative inquiry. Analysis reveals three phases of activity, consisting of interrelated practices that drove insight-based learning: building awareness, collaborative exploration, and learning through design. Through engaging in this process, participants made unconscious aspects of teaching visible that allowed participants to deepen and expand their insights, and through design, articulated new insights and situated their learning back in the context of their teaching. These findings have implications for designing PD that prioritizes participants’ agency to cultivate practices of reflection and inquiry.

Introduction

Teaching has been widely theorized as a dynamic, relational, and responsive discipline that requires practitioners to develop ways of seeing and interpreting that can unveil and support learning processes (Erickson, 2011; Mason, 2002). In this sense, effective teaching relies on practices of reflection, inquiry, and continuous improvement that must be intentionally cultivated throughout a teacher’s career (Cochran-Smith & Lytle, 2009; Lampert, 2001). This dimension of teaching, which we refer to as *learning-for-teaching*, consists of adopting and adapting practices, in contrast to propositional knowledge about content or strategies (Ball & Cohen, 1999; Kennedy, 2016). Consequently, we propose that professional development (PD) programs to support learning-for-teaching must elicit and build on participant inquiry and insight to *enable them to develop and implement relevant practices*. This need for a dynamic and participatory PD model presents a challenge for PD designers, who must consider how to create the conditions for participants’ insights to emerge and facilitate a process of development that is ultimately teacher-driven (Kennedy, 2016). Doing so requires a deep understanding of the practices and processes of insight-based learning, particularly in the context of developing the ambiguous and contextual aspects of teaching.

We draw on participatory and collaborative research models that position practitioners as both experts and learners. Through collaboration with colleagues and facilitators, practitioners apply, explore, and develop their knowledge of their discipline and contexts to produce insights that support continuous improvement (Bang & Vossoughi, 2016; Engeström, 2011). These models point to prioritizing teacher agency in the context of improving teaching, as we recognize that positioning teachers as experts engaged in practices of continuous improvement entails allowing them to guide the practices and processes of their own learning (Cochran-Smith & Lytle, 2009). In our study, we are concerned with understanding the practices that support the development of learning-for-teaching when PD participants engage in collaborative inquiry. Therefore, we ask the research questions: How do teacher-participants experience insight-driven professional development as a generative process for developing learning-for-teaching? What practices emerge in the process of collaborative inquiry?

Theoretical framing

Teacher agency in professional development

Teacher agency has been theorized as an important dimension of teacher learning (Imants & Van der Wal, 2019; Sancar et al, 2021), which indicates that efforts to support teacher learning in professional development can be characterized by the degree of teacher agency they afford. Kennedy (2016) situates PD programs on a spectrum that begins with prescriptive approaches that instruct teachers how to teach and moves toward programs that position participants to generate their own insights. These insight-driven approaches lie at the opposite end of the spectrum, focusing on generative practices that elicit and leverage participants’ insights to articulate and refine concepts for improving teaching (Cochran-Smith & Lytle, 2009; Kennedy, 2016). Borko et al (2011) describe a similar spectrum, moving from highly specified PD programs to highly adaptive programs. Highly specified programs define the goals and the mechanisms that will be employed to produce pre-selected desired outcomes.

Adaptive programs, on the other hand, respond to the needs and interests of participants to determine the goals and foci of PD. The spectrum of teacher agency to which these authors refer does not indicate that more teacher agency is preferable or more effective. Rather, they suggest that different approaches to PD support different forms of teacher learning.

Developing learning-for-teaching practices

We situate this study in the context of insight-driven PD because we theorize that the practices of learning-for-teaching develop through experiences of co-constructing, adapting, and engaging in relevant practices. For teachers to internalize learning-for-teaching, PD must provide opportunities for participants to develop their own practices of inquiry and building on insight. An extensive body of literature on teacher learning identifies developing practices for ongoing inquiry and reflection as the foundation for continuous learning (Grossman et al, 2019; Lampert, 2001; Mason, 2011). This focus on developing practices is particularly important for supporting teachers enacting responsive, equitable, empathetic pedagogies that require ongoing reflection and insight (Lampert, 2010). In this sense, learning-for-teaching refers to a set of diverse, variable, and evolving practices that drive toward continuous learning and improvement. A PD program to learning-for-teaching must therefore be dynamic and responsive, allowing participants the agency to adopt an inquiry stance toward their own teaching and drive the learning process through insight (Cochran-Smith & Lytle, 2009; Mason, 2009).

In this study, we draw on practice theory to investigate how learning-for-teaching can emerge and develop in the context of an insight-driven PD program. Research on teaching has used the term “practice” to refer to replicable and socially recognized routines, e.g. five practices for orchestrating productive discussions (Stein et al, 2008) or high-leverage practices for beginning teaching (Ball & Forzani, 2011). In contrast, Gherardi (2009) cautions against conflating practices with routines, instead defining practice as “a knowledgeable collective action that forges relations and connections among all the resources available and all the constraints present” (p. 117). It is this sense of practice that characterizes learning-for-teaching: teachers apply and develop their knowledge, in collaboration with both colleagues and students, to forge relations and connections in the process of teaching and learning. Gherardi (2009) adds that “acting as a competent practitioner is synonymous with knowing how to connect successfully with the field of practices thus activated” (p. 118). Accordingly, insight-driven PD aims to develop teachers’ ability to forge those relations and connections by positioning them as expert practitioners with the agency to develop their own practices of inquiry and insight. By collaborating to explore, co-construct, and engage in learning-for-teaching practices, participants can activate those practices and embed them in their teaching.

Noticing for equity as an instance of learning-for-teaching

To learn how participants in insight-driven PD programs develop and adopt the practices of inquiry that characterize learning-for-teaching, we examine the case of an insight-driven PD focused on developing teacher noticing for equity. Teacher noticing has been identified as a core construct for teaching that prioritizes the practices of inquiry and reflection we associate with learning-for-teaching. Mason (2002, 2009) calls for developing the discipline to notice in order to support teachers’ ongoing learning and insight, while Erickson (2011) draws attention to the highly personal and variable character of teacher noticing. Santagata & Guarino (2011) identify developing teachers’ noticing as a core area for teacher education, and van Es & Sherin (2021) argue that adopting an inquiry stance is central to teacher noticing because it positions teachers to be curious about learners in the moment. More recent research reveals the role noticing plays for teachers who are seeking to develop more equity-focused classrooms. Specifically, this work recognizes that teachers develop insight into the ways their own personal histories, the histories of learners, and the histories of schooling shape teachers’ noticing in classroom interactions (Kalinec-Craig, 2017; Louie, 2017; Mendoza et al., 2021). Given that this fits with our construct of learning-for-teaching, noticing for equity provides an ideal context to examine how relevant practices emerge and come to be adopted.

Methods

Study Context

This study examines a professional development program called **Community And Teacher Teams Investigate Equitable Noticing & Dispositions**, abbreviated as CoATTEND. This three-year program applied a strengths-based lens to developing teacher noticing for equity in mathematics through participatory action research. CoATTEND began with a series of meetings in which participants discussed key concepts, engaged in thought-provoking activities and reflections, and discussed the nature of inequity and its manifestations in local schools. UCI researchers then conducted a series of classroom observations and used video recordings of these

observations to conduct a noticing interview related to each observation. The noticing interview is like a clinical interview (Hunting, 1997), in which the teacher and a researcher came together to watch and discuss key classroom moments. The observations and noticing interviews were interspersed with additional full team meetings to reflect on the process and discuss emerging themes and insights. During the following year, participants stepped into a co-designer role to create a learning experience for a second cohort of teachers based on the insights and practices that had emerged. This design work involved creating lists of essential topics and concepts, planning a progression of workshops, and identifying formative experiences that could engage and support a new cohort of PD participants.

In addition to developing knowledge about noticing for equity, CoATTEND prioritized “provoking and sustaining an expansive transformation process led and owned by the practitioners” (Engeström, 2011, p. 606). In this program, the subject matter *and* the practices of inquiry were negotiated and co-constructed with participants. Participants assumed increasing agency over the shape of the process to develop new concepts that emerged through their activity and built on their insights, needs, and goals. Rather than aiming to control the process and produce predetermined outcomes, we approach this case with a mindset of curiosity. Having provided participants with opportunities for insight-driven learning and improvement, we seek to learn *what they did with them*. What practices did the participants gravitate to and experience as generative? How did those practices support the emergence or articulation of insights, and how did they position those insights to drive improvement?

Participants and data sources

CoATTEND began with a group of four secondary mathematics teachers and three community educators. Because the involvement of community educators differed from that of teacher participants (e.g. community educators did not participate in noticing interviews), this analysis focuses on the experiences of the four secondary math teachers who participated. All four taught in the same public school district and were identified for recruitment by mathematics teacher educators and their district colleagues on the basis of their demonstrated commitment to equitable teaching. Participants are referred to in this paper by the pseudonyms Jose, Susan, Leah, and Kate.

The primary data source for this analysis is a set of reflective interviews that were conducted with each participant after three years of program activities. Each interview was roughly an hour in duration. Interview questions focused on their retrospective impressions of the program, their memories of impactful experiences and interactions, and their understanding of how program activities supported their learning and development. Developing our analysis of the reflective interviews also relied on artifacts produced during co-design activities in the final year of the project. In the process of designing a program for teacher learning based on their collaboration in CoATTEND, participants identified various impactful and generative components of *their* experience and used their insights to develop a plan for a professional development program. These components, represented in the planning artifacts they produced, provide an outline of their learning process from their perspective.

Analytic Approach

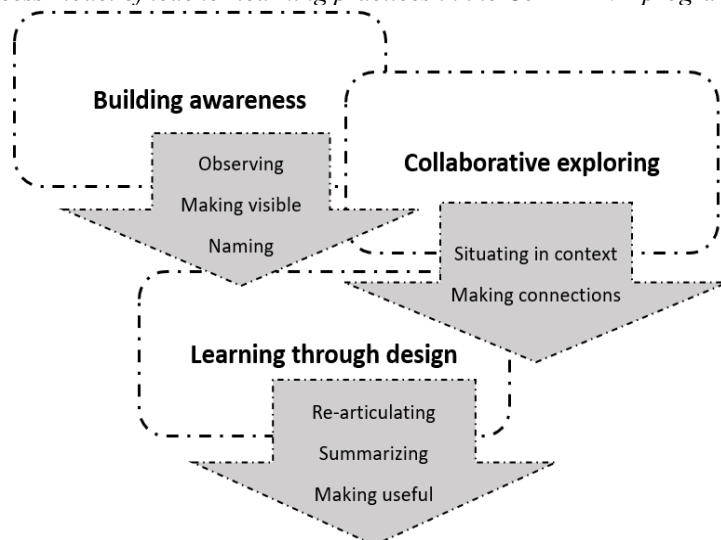
Because participant insight and inquiry are at the center of this PD model, the practices of teacher learning in this context emerged during the course of the program. Gherardi notes that “before action takes place, plans serve only a predictive or organizational purpose” (Gherardi, 2009, p. 122). Centering and building from participant insights means the practices and process cannot be entirely under the designers’ control; learning through insight comes to life through the actions that take place in participants’ activity and interaction (Ball & Cohen, 1999; Kennedy, 2016). Understanding the practices and processes that generate and drive teacher learning therefore requires a phenomenological lens: how did the participants experience the process? How did they understand the practices involved? How did the practices emerge and interact to drive a process of learning? Regarding similar analyses of emerging processes, Coles (2019) advises researchers to begin with the *last* data collected, arguing that “the final piece of data should exhibit the most stable (meta)patterns” (p. 6). By identifying patterns that became stable and recognizable by the *end* of a phase of research, as opposed to looking for the patterns that researchers sought to enact at the start, analysis remains “grounded rather than evaluative...i.e. the pattern is observable in the data and not based on an evaluation of values or virtues” (p. 6). Consequently, we bracket the theories of learning and the design that informed the professional development program at the start and focus instead on participants’ retrospective impressions to map the process and practices of learning to notice. In Gherardi’s terms, this is an analysis “conducted ‘from within’, that is, from the point of view of the practitioners and the activity that is being performed, with its temporality and processuality, as well as the emergent and negotiated order of the action being done” (Gherardi, 2009, p. 117). By centering how the practices in this PD emerged, evolved, and interacted over time from the participants’ perspective, we aim to represent a process of teacher learning that was driven and shaped by their knowledge, experiences, needs, and insights.

In line with Coles' suggestion, we began with an analysis of reflective interviews to center participants' perspectives on the practices and process that unfolded. We first analyzed these interviews at the word and phrase level with an *in vivo* coding approach (Saldaña, 2011), highlighting terms that participants used to describe essential practices, components, and effects from their experiences in the program. As a primarily inductive technique, *in vivo* coding acts as a "grounding strategy" to develop theory from process data. Because we designed the program according to our conjectures about teacher learning, we do not claim this analysis as a fully inductive grounded theory (Charmaz, 2006). Through *in vivo* coding, however, we prioritize induction over deduction and root our claims in empirical data in accord with our research questions; Langley (1999) recommends induction as a means to "explore the interpretations and emotions of different individuals or groups living through the same processes" (p. 700). Our *in vivo* analysis identified over 300 relevant words and phrases, which we reduced to create a set of 54 terms that occurred across the reflective interviews. Based on chronology, patterns, and conceptual links, we organized those terms into categories and used them to produce a visual model of the process that participants described. Langley characterizes visual mapping as an "organizing strategy": it uses the products of the inductive analysis, which grounds the analysis in empirical data, to "descriptively represent process data in a systematic organized form" (Langley, 1999, p. 707). Developing the visual model is therefore both an approach to sensemaking about process data and a way to represent findings.

Findings

Participants' reflections on the CoATTEND PD program indicated three sets of interrelated practices. Although these practices iterated and overlapped throughout the program, participants indicated a sense of sequence that led to representing these practices as phases of activity. These phases lead into each other to drive a process of learning, modeled in Figure 1. Below, we describe each phase of the model and the practices that emerged. Rather than making rigid or deterministic claims about teacher learning, this model is akin to a map of ocean currents - it represents a process in which the elements are in motion and are not strictly separated, but instead intermix and entangle in complex and non-linear ways. At the same time, participants' accounts indicate a sequence and a sense of progress that was consistent across interviews, allowing us to treat the process as a recognizable and reliable pattern of developing activity.

Figure 1
Process model of teacher learning practices in the CoATTEND program



Building awareness

The PD began with a phase of building awareness, in which participants focused on their teaching practices, the contexts of their schools and communities, and the personal and social histories that influence their noticing. Participants voiced an initial impression that the purpose of the program was primarily to observe. Leah described the initial activities as "just always let's look at the interactions, let's look at, you know, and so it was kept really at a level of 'this is what I'm looking at'". By attending to their practice of observing, however, participants came to appreciate the complexity and importance of noticing. To that point, Kate commented that "I thought noticing was simply some kind of just being very, very observant. But I think, as the meetings went on, I realized it was

way more complicated than that and that there was so much more involved with how we see ourselves in the classroom from our historical side and how that changes how we view our students and I think vice versa.” In this phase, the group arrived at the insight that observing consists of nuanced practices that must be learned and developed in their own right. Moreover, they found that observing opened up opportunities to engage in deeper practices of reflection and inquiry regarding their teaching.

Engaging in the practice of observation supported a complementary practice of making unconscious aspects of teaching visible. Intentionally observing improved participants’ awareness and ability to notice, thereby making unconscious aspects of their teaching and noticing visible to themselves. Kate articulated her sense that observing gave rise to a more complex practices, saying that “I forget all the inner workings of what [teaching] takes because it’s just natural now that I don’t think about all the little steps to do exactly what I do and I didn’t realize I’m multitasking and thinking about kids on so many levels all the time. Which is why I think the noticing took on so many more layers than what I thought it was. It’s not just being observant. I think it’s more than that.” This “layered” dimension of noticing only became visible when participants consciously set their attention to the practice of observing. Leah described the practices of this phase as “bringing new things to light”, explaining that “you had done what you did for years and it just became, I guess, 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.’” Likewise, Jose noted that “it was just a little bit of an eye-opener to realize that most teachers are actually doing things that we’re looking into, but we don’t realize we’re doing them. And so that started the process of me thinking about those things.” For Jose, making unconscious aspects of teaching visible was the starting point for a larger process of inquiry. Through all these comments, participants emphasized the importance of externalizing unconscious aspects of practice, including habits, assumptions, interpretations, and internalized routines.

That increasing ability to notice, which participants experienced as increasing visibility of the phenomena, also developed in tandem with a practice of naming relevant phenomena and concepts. Lisa commented that “you guys always put into words what I’m thinking but I can’t put it into words.” Jose described the same naming practice by pointing out that “once everything got integrated and once we got in the know, once we saw what we were doing and we could put labels on everything, everything got laid out in a way that makes sense.” This practice of naming enabled participants to refer to their insights clearly, which made it possible to take stock of their progress and made the insights produced through building awareness available as the basis for a new phase of practices. Having names for the concepts and insights that were emerging enabled participants to move forward with exploring their ideas more deeply in the next phase.

Collaborative exploring

The practices of building awareness made the results of observation available for a phase of collaborative exploring; having externalized and named unconscious aspects of teaching allowed for them to be explored, questioned, and connected. In this phase, participants described both deepening and broadening their insights. Susan pointed out that “our activities help to really distill those things out where I had to pinpoint, yeah, this is the moment, or this is the way that I felt.” These references to “pinpointing” and “distilling” indicate a practice of focusing in on an observation and refining it to produce a clearer or more detailed conception. At the same time, participants also referred to connecting and contextualizing insights. Susan highlighted these practices by saying that “there’s some, like, threads that just all have come together in this project for me of things that were kind of already there, but they’re clarified now. It’s like everything’s coming into focus and now I see how they relate to each other. Whereas before they were just sort of these things that were like floating around out there and they were influencing me, but I talked about them very, as separate entities, not as parts of the whole.” In this sense, collaborative exploring involved situating ideas in context and drawing connections that allowed participants to understand their knowledge and practices as a cohesive network.

Across these accounts, participants pointed out that collaboration was a crucial component of the practices in this phase. Kate identified a contrast between collaborating in CoATTEND and the typical collaboration she experienced as a teacher, pointing out that “I don’t usually go into other teachers’ classrooms and I don’t really talk about teaching practices with others like that in that way. I think we talk about, like, ‘Oh, where are you in chapter seven?’ Or ‘How did you do this one thing?’ We talk about very simple things to discuss, but nothing this deep.” While discussion and collaboration occur in the normal course of teaching, Kate argues that the norms of collaboration in that context do not activate the practices of learning-for-teaching that CoATTEND prioritized. Leah also emphasized the value of collaborative exploring, saying that “I absolutely love having the whole group at the big table and just hearing, and everybody had input and bouncing ideas off each other. I think what we create as a group is big because it’s this person’s idea and that person, and we come together and create something that obviously you couldn’t create alone.” This sense that the results of collaborative

exploring were deeper and more expansive than individual reflection could have produced appears in several teachers' reflections.

Learning through design

At this point, the research team and the participants agreed to design a new PD program on the basis of the insights they had developed. This design phase motivated participants to re-articulate and summarize their insights for the sake of making participants' insights useful as the basis of future PD programs. In this phase, participants were motivated to make their insights useful for teacher learning. This sense of purpose was ostensibly aimed at supporting other teachers, but designing also rendered participants' own understanding in more concrete and actionable forms by pushing them to situate their insights back in the context of teaching. Kate described this phase as "trying to create a new language [and] putting what we're doing into a practice that is digestible for people.", adding that "it felt more practical and it was easier for me to see what we're doing based on how are we going to show this to someone else." By working to frame and express their insights in terms that appeal to other teachers, participants returned to an examination of teaching in context and strengthened the connections between their insights and their teaching.

The practice of summarizing helped participants articulate the purposes and the outcomes of the program. Leah described the design phase as "just this big summary of what we'd been through" and emphasized the value of the summarizing practice: "it's a big confidence thing because I don't know, you know, you're thinking 'am I good enough to help with that, did I have enough experience?' But it was neat to see the different things we had done, and then I could kind of join with 'okay, that's, I'm good with that, and I'm not so good with that.'" The practice of summarizing enabled Leah to take stock of her own developing knowledge, leading to increased confidence in the knowledge she had built and a sense for areas of growth that deserved further attention. Susan expressed a similar sense that the concrete character of designing was beneficial, saying that "once we had some headings, then things really started to hum, clicking happened. It wasn't that we were disagreeing before, it was just this like, well, there wasn't a clear goal. So there was a whole lot of talking, which wasn't bad because it deepened our understanding of other things, but this process has felt fun because we see an outcome." Ambiguity regarding the goals and process of the work was a consequence of allowing room for teacher agency. Because the outcomes and practices were not predetermined, participants had to navigate through the uncertainty of building on their own insights without a "clear" goal. While that aspect of the process was valuable and necessary, participants found that these practices of articulating and summarizing the insights they had explored enabled them to make sense of the progress they had made. Susan summed up her impressions with the comment, "I think all of that stuff was really, really important to getting to this place, but now being able to put all of those things together feels good."

Discussion

This analysis reveals the messy process of insight-driven teacher learning, as well as the practices this process entailed. We contend that the dynamic, open character of the process positioned participants to develop new insights, grounded in their knowledge and experience of their teaching contexts, and use them as the basis for improving their practices of learning-for-teaching. In short, we see participants developing the practices of learning-for-teaching by engaging in those same practices of inquiry and reflection in the context of the PD.

Prior research demonstrates the importance of developing these learning-for-teaching practices (Cochran-Smith & Lytle, 2009; Lampert, 2010; Mason, 2009). Moreover, the personal, contextual, and ambiguous dimension of learning-for-teaching practices is central to their enactment (Kaliniec-Craig, 2017; Louie, 2017; Mendoza et al, 2021). Because this approach to teacher learning emphasizes practices that build on participant insights instead of focusing on predetermined content, we hold insight-driven PD models are especially suited to responsive needs of developing learning-for-teaching. By centering this PD on the practices and processes of inquiry in addition to the content addressed, teachers were positioned to engage in the generative process of building on the insights they developed based on their own understanding and experiences. This characteristic makes insight-driven PD responsive to teachers' learning trajectories, thereby supporting the development of their learning-for-teaching practices through a different process than would be afforded by one-size-fits-all content (Kennedy, 2016). While many of the patterns we describe here align with the theories and conjectures that informed the design of the program, some aspects stood out as unexpected, participant-directed elements. For instance, the noticing interviews were initially conceived as an instrument for data collection, but participants found them to be impactful for their own learning and development. Consequently, we reconceptualized the noticing interview as a central learning activity in the PD and are planning to include it as a pedagogical structure in future PD and teacher preparation programs. Moving into the third stage, learning through design, was similarly participant-directed. The original plan involved the participants collaborating with researchers on data analysis in

a more typical “academic” fashion. Upon reaching that point, however, participants voiced a strong desire to design PD for pre-service and early career teachers and had comparatively little interest in data analysis or academic writing. As a result, the research team chose to follow participants’ energy and pursue the design phase as a set of practices that the *participants* expected to be generative. These changes in emphasis and direction on the basis of participants’ engagement highlight the opportunities for reciprocal learning afforded by an adaptive, insight-based approach to professional development.

As an effort to map a fluid and dynamic process of learning, the process model we provide appears more static and straightforward than the network of practices it represents; recall the comparison above to a map of ocean currents. Consistent with the processual lens of our analysis, our model represents the evolving practices of the PD in phases to render the *patterns* and *trajectories* of participants’ activity visible (Gherardi, 2009; Langley, 1999). The challenge in applying this model, therefore, is to design with the “current” of insight-driven learning in mind without forcing participants to follow a particular course. Our findings suggest that beginning with building awareness, providing opportunities for multiple forms of collaboration, and applying insights through co-design work can together encourage practices of inquiry that at the same time prioritize participants’ insights and preserve their agency. We recognize, however, the limitations of investigating this process on the basis of a single case. Future work could improve and complicate our understanding of insight-driven PD by modeling the emergence of practices in additional cases and contexts of teacher learning (Langley, 1999; Saldaña, 2011). With a clearer picture of designing for and facilitating the process of insight-driven learning, PD stands to support teachers in cultivating a deep, personal, and lasting orientation to reflective, responsive, and equitable teaching practices.

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