Investigating sociopedagogical norms: Teachers' discussions about own and others' instruction

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HIGHLIGHTS

- Sociopedagogical norms are participation patterns when talking about instruction.
- Sociopedagogical norms are as important as social or sociomathematical norms.
- Sociopedagogical norms should be considered when designing professional development.
- Sociopedagogical norms can differ for discussions of own versus others' instruction.

ARTICLE INFO

1. Introduction

Attention to communities of learners (Wenger, 1998) has increased researchers' interest in understanding participation in discourse communities formed during professional development (PD) (Putnam & Borko, 2000). Researchers have examined teacher participation in PD in the context of video clubs (Sherin & Han, 2004; van Es, 2012), the Problem-Solving Cycle (Borko, Jacobs, Eiteljorg, & Pittman, 2008; Koellner et al., 2007), lesson study (Fernandez, 2005; Vrikki, Warwick, Vermunt, Mercer, & Van Halem, 2017), and collaborations between classroom teachers and teacher educators (Erickson, Minnes Brandes, Mitchell, & Mitchell, 2005; Lunenberg, Korthagen, & Swennen, 2007). Others have researched techniques geared to increase teacher participation in PD discourse communities such as storytelling (Shank, 2006).

The norms that guide interactions among teachers are critical to

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discourse participation. According to the Oxford English Dictionary, a norm is "a standard or pattern of social behavior that is accepted in or expected of a group" (Norm, n.d.). Norms shape conversation patterns that become accepted in discourse communities and create "regular patterns of behavior that affect the nature of the learning that occurs within them" (Van Zoest, Stockero, & Taylor, 2012, p. 294). Examining norms in classroom settings, Yackel and Cobb (1996) distinguished between general social norms and norms that are tightly connected to the nature and content of specific conversations. In their case, attending to mathematics, they defined the concept of sociomathematical norms as "normative aspects of mathematics discussions specific to students' mathematical activity" (p. 461). For example, in the classroom, understanding that one should explain their solution is a social norm; understanding what is an accepted mathematical explanation is a sociomathematical norm.

Researchers in teacher education have examined the ways in which teachers discuss mathematical ideas, extending the concept of sociomathematical norms to mathematics PD settings (e.g., Clark, Moore, & Carlson, 2008; Dean, 2005; Elliott et al., 2009; Kazemi, Elliott, Hubbard, Carroll, & Mumme, 2007, pp. 796–803). We argue that in the same way that there are norms governing teachers' mathematics-related discussions, norms also shape the ways teachers talk about pedagogy. Thus, we call *sociopedagogical norms* the participation patterns that become established and subsequently expected when teachers are talking with their colleagues about instruction. Building on Yackel and Cobb (1996), we posit that sociopedagogical norms set the normative aspects that are specific to teachers' pedagogical discussions. In our research, we are particularly interested in whether sociopedagogical norms in a PD setting differ when teachers are discussing their own

instruction, that is, the instruction of someone who is part of the PD program, versus the instruction of others, that is, the instruction of teachers who are not part of the PD and are unknown to the PD participants. Understanding these differences can inform PD designers and leaders about ways to strategically ground and shape conversations about instruction.

To explore the concept of sociopedagogical norms, we focus on norms developed during pedagogical discussions within a year-long, 40-h, mathematics PD program for second-grade teachers. In this paper, we first discuss the concept of norms and the research that has looked at norms in PD settings. We then introduce the PD program that was the context for this study. Next, we explain our research methods, data collection, and data analysis process. Lastly, we present our findings regarding similarities and differences in sociopedagogical norms established when teachers talked about their own instruction versus the instruction of other teachers. We conclude by considering implications of our findings for the design of PD programs.

2. Norms in PD contexts

Research has examined the establishment of norms as a means to promote change in a wide array of social situations, from legal cases (Sunstein, 1996), to eating disorders (Baker, Little, & Brownell, 2003), to binge drinking on college campuses (Haines, 1996). Within education, classroom norms have been studied with the goal of establishing patterns that lead to desired classroom outcomes. For example, Ryan and Patrick (2001) studied social norms associated with engagement and motivation. They found that the teachers' establishment of classroom norms, such as being open for discussion and supportive of ideas, promoted students' engagement in "adaptive patterns of learning" (p. 456). Lewis (2001) determined how the social norms of the classroom community affected classroom practices involving literature.

In mathematics classrooms, the concept of sociomathematical norms has received significant attention (e.g., Güven & Dede, 2017; Kang & Kim, 2016; Kazemi, 1998; McClain & Cobb, 2001; Partanen & Kaasila, 2015; Yackel & Cobb, 1996). Researchers have examined the impact of sociomathematical norms on students' mathematics understanding and shown that when teachers establish norms that press for conceptual thinking, student achievement increases (Kazemi, 1998). In preservice education, Güven and Dede (2017) found that preservice teachers' "acquisition of productive norms helped them have their students acquire productive norms" (p. 286). Working closely with teachers to develop specific sociomathematical norms, Partanen and Kaasila (2015) found that additional unintended norms can emerge, such as the sociomathematical norm of creativity when approaching calculus solutions. Kang and Kim (2016) reported that teachers' belief that mathematics is procedural hindered the emergence of some desired sociomathematical norms.

Sociomathematical norms have also been researched in PD contexts. Focusing on teachers' collaborative problem solving, researchers have shown the importance of rules for specific mathematical representations (Dean, 2005), expectations that mathematical expressions should be unambiguous (Tatsis & Koleza, 2008), and the practice of validating mathematical methods after they are implemented (Tatsis & Koleza, 2008). In addition, sociomathematical norms, such as pushing for understanding of another's mathematical reasoning and comparing mathematical ideas (Van Zoest et al., 2012), as well as how to respond to someone who is confused or who asks mathematical questions (Elliott et al., 2009), have been identified during discussions about mathematics and mathematics pedagogy. Aside from identifying the establishment of sociomathematical norms, researchers have

studied sociomathematical norms that offer value in supporting teachers' learning, such as speaking with meaning (Clark et al., 2008).

Teachers' discussions about mathematics, however, have proven to be different than those about mathematics instruction, suggesting that there are norms specific to discussions about pedagogy. Contrasting teachers' mathematical and pedagogical discussions, Steele (2005) noted that discussions about mathematics included more claims supported with disciplinary evidence, whereas discussions about pedagogy involved more qualifiers and personal evidence. Van Zoest et al. (2012) described differences between teachers' stance toward mathematical versus pedagogical discussions: when discussing mathematics, teachers tended to be more tentative in their responses and hence more open to others' suggestions, yet when discussing instruction, they were often certain and not inviting of others' thoughts. This finding is similar to Crespo's (2006) characterization of teachers' talk as exploratory (e.g., hesitant, inexplicit, and hypothetical) when talking about mathematics and expository (e.g., polished, explicit, and definitive) when talking about pedagogy.

Compared to the more established attention researchers have given to sociomathematical norms, attention to the idea of sociopedagogical norms is just emerging and the terminology used to discuss such norms has been inconsistent (Foote & Dick, 2015). Van Zoest et al. (2012) studied behaviors specific to learning about instruction and discussed these behaviors as professional norms. Steele (2005) pointed out "basic norms and practices for discussions" (p. 316) on pedagogy, whereas Dean (2005) discussed norms of pedagogical reasoning. Similarly, van Es (2012) examined participation and discourse norms as teachers talked about instruction and learning. Literature on these types of norms is less common than that on sociomathematical norms, yet it presents a landscape for beginning to recognize and understand teachers' ways of engaging in discussions about pedagogy.

Initial research on teachers' discussions about pedagogy has highlighted that these conversations vary when teachers are talking about themselves (those who are participating in the conversation) or when teachers are talking about others (teachers who are not participating in the conversation and are unknown to the teachers). Seidel, Sturmer, Blomberg, Kobarg, and Schwindt (2011) investigated "specific effects of working with videos of one's own teaching versus others' teaching" (p. 261). They compared two treatment groups: teachers who watched videos of their own instruction and teachers who watched video of others' instruction. They found that teachers who analyzed their own videos were less critical than teachers who watched others' video. Kleinknecht and Schneider (2013) looked at individual teachers' approaches to analysis of videos of their own or others' instruction. They found teachers were more likely to make positive comments when the video was of themselves while they were more likely to critique when the video was of another teacher.

These emerging results, showing differences between mathematical and pedagogical discussions, and also showing that teachers were less critical and more positive when discussing videos of their own instruction versus the instruction of others, motivated our investigation. Thus, we first set to explore the sociopedagogical norms present in one PD program and then we sought to answer the following research question: in what ways are sociopedagogical norms for participation in discourse about instruction within a PD setting similar or different when teachers are discussing their own instruction versus the instruction of others?

3. Methodology

This study is part of a larger design research program that, for