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From Critical to Generative Moments when Learning to Provide Instructional Scaffolding during Fieldwork

Abstract

The present study aims to contribute with insights into how and under which conditions teacher candidates can make progress toward responsive instructional scaffolding when supported by video of their own teaching in mentoring conversations during fieldwork. The study builds on the body of research that uses video to support teacher candidates in learning to notice and reason about significant classroom events as a basis for making responsive instructional decisions in the future (van Es & Sherin, 2002). It contributes to the field by answering calls for a socio-cultural approach to the development of professional vision (Santagata et al., 2021) and by introducing the notion of critical moments for instructional scaffolding (Myhill & Warren) as a worthy observation focus. Drawing on screen- and audio-recordings of 12 mentoring conversations and 11 interviews, this study investigates which critical moments the candidates and mentors notice in the candidates' videos, and whether and how they engage in knowledge-based reasoning about these critical moments. Findings show that the candidates' and mentors' collective noticing enabled the candidates to reason about critical moments that they were not able to notice on their own, such as lost opportunities to build on students' prior knowledge. Three patterns of knowledge-based reasoning emerged; reasoning that generalized successful moments of instructional scaffolding in light of theoretical principles of instructional scaffolding, reasoning in which critical moments were lost in complexity or gave way to emotional support, and in-depth reasoning that fostered generative moments in which the candidates gained new insights and strategies for providing responsive instructional scaffolding.

Extended summary

Aims and research questions

Inherent in the ambition of preparing teacher candidates to scaffold student learning is the dilemma that while we can introduce candidates to theories, principles and specific scaffolding techniques during coursework, instructional scaffolding should always be tailored to individual students' needs as they emerge in immediate classroom interactions (Ross & Gibson, 2010). These "critical moments" (Myhill & Warren, 2005) in classroom interaction urges teachers to act on the fly. While experienced teachers are supported by their professional vision (Goodwin, 1994), which informs and underpins responsive decision-making (Cowie et al., 2018), teacher candidates tend to focus more on their own activities than their students (Colestock & Sherin, 2009).

The present study aims to contribute with insights into how and under which conditions teacher candidates can make progress toward responsive instructional scaffolding when supported by video of their own teaching in mentoring conversations during fieldwork. The study builds on the body of research that uses video to support teacher candidates in learning to notice significant classroom events as a basis for making responsive instructional decisions in the future (van Es & Sherin, 2002). While most of this research have had a cognitive-psychological framing (Santagata et al., 2021), this study answers calls for a socio-cultural take on how teacher candidates can be socialized into ways of seeing and making sense of classroom events (Santagata et al., 2021; Scheiner, 2021). The study investigates the following research question:

RQ1: Which critical moments in the candidates' videos do the candidates and their mentors notice?

RQ2: How, if at all, do the candidates and mentors engage in knowledge-based reasoning about these critical moments?

Theoretical background

This study is shaped by a socio-cultural perspective on how teacher candidates learn to notice and reason, conceptualized as the development of professional vision (Goodwin, 1994; Blomberg et al., 2011). The study introduces Myhill & Warren's (2005) notion of critical moments for instructional scaffolding as a worthy observation focus, defined as moments which are "significant either in supporting the development of a child's understanding or in hindering it, or where an opportunity to build on a child's response was missed" (p. 59). Moreover, the study builds on Horn & Little (2010) work on conversation routines related to problems of practice, arguing that generativity in (video-based) discussions is not an individual matter, but a result of collective inquiry.

Methods

This qualitative study reports on seven teacher candidates and four mentors who were purposively sampled based on their shared interest in instructional scaffolding. Prior to the fieldwork, the

candidates had worked with videos of strategy instruction, modeling, and feedback during coursework in subject didactics of Language Arts, including quality criteria of instructional scaffolding as defined by the PLATO protocol (Grossman, 2015). Two of the four mentors were familiar with the PLATO framework due to participation in a professional development program. The other two mentor had more than 20 years of teaching experience.

The data consists of screen and audio recordings of 12 mentoring conversations (in total, 403 minutes), containing 32 video clips of the candidates' enactment of instructional scaffolding, and 11 semi-structured individual interviews (in total, 549 minutes).

To investigate which critical moments the candidates and mentors noticed in the candidates' videos (RQ1), I developed initial codes from Myhill & Warren's (2005) three empirical categories of critical moments and looked for linguistic cues that gave significance to such moments in both the mentoring conversations and the interviews. Next, I gave each critical moment a thematic label and grouped them into six empirically derived categories.

To investigate whether and how the candidates and mentors engaged in knowledge-based reasoning about critical moments (RQ2), I coded episodes of reasoning with Horn & Little's (2010) analytical concepts *normalization*, *specification*, *revision* and *generalization*. Next, I coded each utterance within each episode inductively. Finally, I triangulated the analysis with the participants' statements in interviews, looking for patterns that mutually confirmed each other.

Findings

A key finding in this study is that the candidates' and mentors' collective noticing enabled the candidates to reason about critical moments that they were not able to notice on their own. Among the 36 critical moments identified, four categories were typically identified by the candidates themselves; how to (1) handle the quest for fixed answers and (2) inaccurate answers in whole class, and how to (3) support struggling students and (4) provide oral feedback on the spot. Mentors often identified missed opportunities to (5) build on students' prior knowledge and (6) address common misunderstandings or excellent student work in plenum.

Three patterns of knowledge-based reasoning emerged. The first was a pattern of talk around critical moments that the candidates handled successfully, where critical moments were generalized in light of theoretical principles of instructional scaffolding as defined by PLATO. In contrast, the second and third pattern arose when the candidates faced a difficulty or when their mentors made them aware of a critical moment that they had not notice. In the second pattern, critical moments were lost in the complexity of the situation or gave way to emotional support (normalization). The third was a pattern of in-depth reasoning about critical moments that, when normalized, specified, generalized, and revisited on video, fostered generative moments in which the candidates expressed new insights and possible solutions.

Significance and Relevance

Theoretically, this study responds to calls for a socio-cultural approach to teacher (candidate) noticing (Santagata et. al., 2021) by conceiving of learning to notice as a socialization process aided

by video during fieldwork. In addition, the notion of critical moments for instructional scaffolding represent a contribution to the field, which mainly has conceptualized noticing in relation to students' mathematical thinking (Santagata et. al., 2021). Regarding educational significance, this study illustrates how video viewing during fieldwork can spark generative discussions that support teacher candidates' professional vision and their progress towards responsive instructional scaffolding. Finally, with respect to the QUINT ambition, this study is relevant for Theme 4's focus on supporting teacher candidates' teaching repertoire and ability to notice and reason around critical events.

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