Paper 1: Exploring the Personal Domain: Noticing Task as New Method and Descriptive Analyses of Change

Schellinger, J., Kaya, R.A., Coker, R. & Southerland. S. A.

Abstract
A teacher's noticing or their ability to see and interpret classroom events is an important component of their expertise. Examinations of these noticings is a way to understand changes in their learning over time. In this research, we examine changes in teacher noticing of classroom instruction for two groups that participated in slightly different professional development experiences to understand how this PD shaped their personal domain of learning. Findings suggest that both programs shaped teacher noticing and learning but in different ways.

Introduction and Research Question

As teachers learn they develop visions and ideas about instruction that supports their views of student learning and their practice (Goodwin, 1994). The "ability to see and interpret critical features of classroom events" (Sherin & Han, 2004, p. 179) is an important component of teacher expertise and a component that can change as teachers revise their ideas about pedagogy, student thinking, and other aspects of classroom instruction (Tekkumru-Kisa et al., 2018). In the research presented here, we examine teachers noticing of instruction to understand the ideas that they acknowledge as important to them and we explore how these noticings change over time to signal teacher learning. The research question that drives this work is: *What are the differences in teacher noticings at the beginning and end of the PD from the LCD group compared to teachers from the LTP group?*

Methods

This study drew on results from a Noticing Task in which teachers watched a video of another teacher's instruction focused on the phase changes. After watching the video the teachers audio recorded their answers to 11 questions asking about the teacher's practice and students' thinking.

All audio and video transcripts were coded by the second and third authors until they reached 80 percent inter-rater reliability, after which time the data were coded independently. Codes included six topics (***Pedagogy, Student Thinking, Talk, Engagement, Climate,*** *and* ***Stace***) (Adapted from Tekkumru-Kisa et al., 2018 codebook). When teachers noticed ***Pedagogy*** they noticed techniques and strategies for teaching. Noticings of ***Student Thinking*** related to what students were saying or what they appear to think or understand across five sub-codes including where ***sources*** of ideas came from, students' gestural ***actions***, use of specific science ***content***, student ***meaning***, and ***level*** of student thinking. ***Talk*** codes related to noticings about productive talk and styles of talk. ***Engagement*** related to the level of student participation. ***Management*** related to issues of student behavior. Lastly, responses were coded for ***Stance*** which included subcodes of whether a teacher talked about the observable features seen in the video (***description***), whether they ***evaluated*** the quality of the classroom interactions, and whether they made inferences about what was seen as they made sense of what occurred (**interpretive**). Codes were combined to calculate occurrences for each teacher and then averages of these codes were calculated by group type (i.e., LCD (N = 6) and LTP (N = 6)) for Pre and Post data points.

Findings

Teacher noticing changed by group with groups increasing, decreasing, or remaining the same in their noticings in different topics (Table 1). Both LCD and LTP groups increased in their noticings about pedagogy and decreased in their noticings of student thinking. The LCD group increased in their noticing of climate and engagement and decreased in their noticings related to talk. The LTP group increased in their noticings of climate and talk and remain the same in their noticings of engagement. In terms of stance, LCD teachers increased in their evaluative and

interpretive noticings but not their descriptive. LTP teachers increased their interpretive noticings but not their descriptive or evaluative.

Table 1. Pre and Post Average Noticing Scores by Topic

Group	Time	Pedagogy	Student Thinking	Climate	Engagement	Talk	Descriptive	Evaluative	Interpretive
LCD	Pre	4.80	5.00	1.00	1.00	1.83	4.20	4.00	4.67

LCD	Post	6.83*	2.50	2.00*	2.00*	1.33	2.50	4.25*	5.40*
LTP	Pre	6.33	5.00	-	2.00	1.67	3.80	2.67	3.33
LTP	Post	6.50*	4.00	1.00*	1.50	2.00*	3.33	2.00	6.00*

*indicates increases from pre to post

An examination of teacher's attention to pedagogies found that LCD teachers increased in their noticings about disciplinary content and practice. LTP increased their pedagogy noticing related general content as well as disciplinary content and practice. While noticing on student thinking decreased for all teachers, LCD teacher increased in their noticings of students' level of thinking and meaning. LTP teachers noticings increased in students' levels of thinking and content.While noticing of student thinking did not increase, teacher noticings of student thinking increased for level and meaning for LCD teachers. Student thinking increased for level and content for LTP.

In summary, both groups of teachers experienced changes in their types of noticings. LCD PD teachers appear to have more noticings about the ways in which student sensemake (e.g., student expressions, thinking, and participation) and the contexts of the social environment, all characteristics examined and foregrounded in the PD. LCD teachers evaluated the quality of classroom interactions and made more inferences about what they saw in those interactions after the PD, both characteristics focused on during the PD. That is, the PD focused LCD teachers on the examination of video clips from their instruction or their peers to discuss the interactions between the teacher and students and to make inferences and discuss how the teacher's instruction supported student sensemaking through talk.

On the other hand, LTP teachers noticed more about content and levels or kinds of student thinking related to this content. They focused on the pedagogy tied to content while focusing in on the social environment and talk. While, both of these characteristics can support student thinking, the LTP teachers' attention to general content might suggest that without engaging in the collaborative piece of the PD, they may not have been supported to engage in more of the nuanced examination of student ideas. The LTP teachers increased in making inferences about what they saw in the video. Given their focus on content in pedagogy, one might suggest that these inferences were tied to students' content knowledge rather than ways of engaging students with sensemaking about that content.

Conclusions

Examination of these results suggest that teachers' learned as they engaged in the PD and did so in different ways that aligned with the PD strategies and foci they engaged with. The Noticing Task was implemented to gain a better understanding of what teachers notice in instruction over time, as a measure of their learning. Examination of these results suggest that teachers learned as they engaged in the PD and did so in different ways that aligned with the PD strategies and foci they engaged with by group. However, we did not observer large shift in noticings suggesting that teachers may need to remain in PD spaces or sit with alternations in their ideas over longer periods of time.

References

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