Two Cases of Prospective Mathematics Teachers Learning to Notice and Name Students' Strengths and Support Students' Participation

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Abstract: This poster describes how two prospective teachers begin to use strengths-based language and support students' participation after completing a digital learning experience on noticing and naming students' mathematical strengths. Findings show both prospective teachers (Alicia and Marissa) made meaningful strengths-based feedback statements during the post-assessment of the practice-based digital learning experience and showed positive shifts in their moves to support students' participation in the classroom, however, these practices were not necessarily connected to their learning.

Introduction

As many teacher education programs shift toward a practice-based teacher education model that prioritizes core instructional practices, there are growing critiques that this movement overemphasizes teaching routines and moves and lacks foundational commitments to equity and justice (Philip et al., 2018). However, core instructional practices have the potential to support prospective teachers (PTs) to develop a vision of teaching committed to social justice if they are used as tools to disrupt classroom inequities (Kavanagh, 2017). This paper examines a component of the core practice of providing feedback to students that is focused on equity and access: *Noticing and naming students' mathematical strengths* (NNSMS). Teachers can publicly name students' strengths and resources to position students as competent learners and doers of mathematics (Cohen & Lotan, 1997; Jilk, 2016) to potentially disrupt issues of status and participation in mathematics classrooms (see Horn, 2012; Jilk, 2016). The purpose of this study is to describe how two PTs begin to use strengths-based language and support students' participation after completing a digital learning experience on NNSMS. The research question guiding this work is: What feedback statements do PTs make before and after they receive explicit support for using strengths-based language and is there evidence of PTs' learning following this support?

Methods

The context of this sequential qualitative case study was a semester-long secondary mathematics methods course at a large mid-Atlantic public university in the USA, attended by seven PTs and taught by one mathematics teacher educator (author). Five PTs were in the secondary mathematics program and two PTs were in the middle school mathematics program. The course was the second of three methods courses and PTs were concurrently enrolled in a teaching internship. Data collection for part one used pre- and post-assessment data from a digital learning experience on NNSMS that took place during class. The digital learning experience had four modules and used the LessonSketch Platform (www.lessonsketch.org) including comic-based representations of teaching. The experience also introduced PTs to a sentence frame for NNSMS (see Jilk, 2016). Data collection for part two included sources on PTs' practice (two 15-minute transcripts), PTs' reflections on practice (two instruction commentaries), and PTs' learning (journal entries, course reflection, and interview). The objective during part one of the analysis was to code feedback statements for the type of language (strengths-based, deficit-based, mixed, or uncommitted, see Kalinec-Craig, Bannister, Bowen, Jacques, & Crespo, 2020) and for measures of quality. Measures of quality for this study include mathematical evidence, a justification of why the student's mathematical contribution was smart, and a teacher reasoning strategy. During part two of the analysis, the priority was to code PTs' feedback statements and identify PTs' moves to support students' participation in the classroom transcripts then analyze data sources for features of teacher learning related to NNSMS. Part two of the analysis generated written cases for two PTs (Alicia and Marissa).

Findings

For part one of the study, Alicia and Marissa made strengths-based feedback statements on the post-assessment. On the pre-assessment Alicia made three uncommitted statements and two strengths-based statements and Marissa made five uncommitted feedback statements. Alicia was the only PT to make strengths-based statements before and after the digital learning experience, however, Alicia's statements were evaluative and focused on students' correctness rather than the strengths of students' contributions.

For part two of the study, the most salient theme across Alicia's feedback statements was Alicia's use of strengths-based language to revoice and evaluate students' responses. When Alicia used an open-ended question to create space for more students (six) to participate this let many students contribute successively but also may have made it difficult for Alicia to take time to name students' strengths or positively position students' responses. The transcripts also show Alicia encouraged students to participate and Alicia positively positioned students with partially correct responses. Overall, Alicia did not use the practice of NNSMS and favorable positioning of students to explicitly mitigate known issues of status and participation. When Alicia did attempt to change who participated in her classroom, she may have sometimes done so in a way that reinforced issues of status. Lastly, there is no indication that NNSMS and the digital learning experience were integral to Alicia's learning as Alicia makes no mention of the digital learning experience or the practice of NNSMS.

In Marissa's first transcript, there are several instances when she positively positioned students' contributions but she did not explicitly name students' strengths and Marissa rarely used students' names. In terms of student participation, Marissa was able to compare and connect students' ideas in the second transcript after previously writing: "I'm not sure how well this would work in my current classes, but I love the idea of listening to different student approaches and giving those students credit for them..." (Journal Entries, p. 4). Thus, Marissa desired to give students credit for their contributions but she was not sure how to do so prior to the digital learning experience. In the second transcript, Marissa begins to address issues of status and participation in one small group but she also reflects on a missed opportunity to address participation in another group. Here, Marissa recognized how who she included (or did not include) in the discussion sent messages to her students about the value of everyone's work which is a reminder that teachers play an active role in who participates and when. More generally, Marissa reflected she often noticed the same strengths for the same students. In sum, Marissa transitioned from wondering how to support students' participation in her classroom to displaying a more diverse repertoire of practices for doing so and the digital learning experience was fundamental to Marissa's learning, as demonstrated by her journal entries, interview, and course reflection.

Discussion

The primary contribution of this study is that it describes and contrasts what happened in two PTs' classrooms as well as PTs' differences in learning after both PTs made meaningful strengths-based feedback statements during the post-assessment of the practice-based digital learning experience. Moreover, the practice of NNSMS was only integral to Marissa's learning and vision of teaching and Marissa found Jilk's sentence frame (2016) a useful tool for learning and practice whereas this was not true for Alicia. This study also highlights tensions that arise when PTs use a repertoire of teaching practices to support and manage students' participation. For example, evaluating the correctness of a response and NNSMS are foundationally in tension but also share intersections as both practices aim to interpret and make use of students' contributions. This implies PTs may initially need space to work on NNSMS in isolation from teaching practices such as evaluating students' work.

References

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