

TRACING TEACHER RESEARCHERS' TALK ABOUT AND USE OF POSITIONING

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In this paper, we examine what teacher-researchers talk about and do as they engage with the idea of positioning in the context of study group discussions and cycles of action research. Using open coding, we analyze study group discussions and other artifacts across a five-year time span and examine how their talk and action changes over time. Broadly, we found that the teacher researchers were, at first surprised and unsure about how to positively influence positioning in their classrooms, then moved to a focus on the positioning of mathematics. As they adopted new curriculum materials, goals, and classroom norms, their talk and action shifted to focus on students' perspectives, voice, and issues of bias in their interactions with students. Such a longitudinal study can provide insights into how ideas like positioning might be used by teachers to work toward more equitable practices in mathematics classrooms.

Keywords: Classroom Discourse, Teacher Education-Inservice/Professional Development

We take it as central that the theoretical constructs we use matter most when we use them with teachers to see what is helpful to improving their practice toward their own ends of supporting student learning. In this way, we align ourselves with the views of crossroads as being an “intersection point” and see our collaborations with teachers as a “place of community” within which we (as mathematics education researchers and teacher educators) must learn. Here we examine the discussions and action research of a group of mathematics teachers the first author has collaborated with for five years to understand how the teacher researchers both talk about and use the idea of “positioning.” Positioning refers to the “ways in which people use action and speech to arrange social structures” (Wagner & Herbel-Eisenmann, 2009, p. 2). In mathematics classrooms, words and actions carry implicit and explicit messages about who students are as learners, what they are capable of, and what it means to know/do mathematics. It has been shown that when particular positionings are repeated over and over, they can impact students' identity (Anderson, 2009) and disposition (Gresalfi, 2009) development. The results influence students' perceptions of themselves and others and are important to pay attention to, particularly in collaborative work with teachers. Thus, our goal is to answer the following question: When mathematics teachers talk about positioning across a five-year collaboration involving action research, what do they focus on and how do they report using it to improve their practice and student learning?

Positioning and Its Operationalization for Professional Development

Positioning theory is the “study of local moral orders” based on ongoing shifting patterns of “mutual and contestable rights and obligations of speaking and acting” (Harré & van Langenhove, 1999, p. 1). Important to issues of equity is that positioning theory does not assume that everyone in an interaction has equal access to rights and duties to perform any action (Harré, 2012). Although the theory focuses on local interactions (rather than the transcendental), it also shows the centrality of storylines and the communication acts that are employed in any interaction. Storylines are the ongoing repertoires that are already shared culturally or that can be invented as participants interact. We have described communication acts as the socially determined meaning taken from a communication action, which can be words, gestures, and physical positions and stances (Herbel-Eisenmann, et al., 2015). All three of these constructs--positionings, storylines, and communication acts-- mutually shape and constrain each other during an interaction. This theory has been

increasingly used in the past decade of mathematics education research, with most of the articles appearing since 2009 (Herbel-Eisenmann, Meaney, Bishop Pierson, & Heyd-Metzuyanim, 2017). Very little of this work, however, actually involves collaborations with mathematics teachers to see what from the theory might be interesting and useful enough for them to change their practices. Our previous work that investigated theoretical constructs within the context of collaborations with teachers has illuminated how teachers make sense of the ideas and find them useful in their work but also has allowed us to reconceptualize the constructs in ways useful to practice (see Herbel-Eisenmann & Wagner, 2010; Wagner & Herbel-Eisenmann, 2014).

In the context of the collaborative work, we have used the *Mathematics Discourse in Secondary Classrooms* (Herbel-Eisenmann, et al., 2017) professional development (PD) materials to introduce the idea of positioning (and other constructs, which we do not focus on here) as a theoretical lens that can be used to interpret particular teacher discourse moves. In these PD materials, there are a series of “touchstone” readings that are used to formally introduce key concepts and tools of classroom discourse, one of which focuses on positioning. This touchstone document includes a focus on the positioning of people and the positioning of mathematics, which we describe very briefly here. In the positioning of people, teachers’ attention is drawn to: (a) interactions between/among students and issues of status (Cohen, 1994), smartness (Featherstone, et al., 2011), and voice are highlighted and (b) interactions between the teacher and students, within which aspects of authority, agency, control, and competence are articulated. The positioning of mathematics highlights how the various activities, tasks, and words we use in relationship to the doing of mathematics shapes what students come to think it means to know/do mathematics. (We recognize that the positioning of mathematics is really about calling into question the storyline of typical school mathematics and not really about positioning. We decided to identify this as a type of positioning so that we did not have to bring in the additional idea of storyline.) Prior to reading the touchstone document, the teachers talked about ideas related to positioning by reflecting on videos, transcripts, and other practice-based artifacts. After they read the touchstone, the idea of positioning becomes a conceptual lens for considering how a range of specific discourse moves might be influencing students’ opportunities to learn mathematics.

Context and Methods

The teacher research collaboration currently involves eight mathematics teachers who are working in a culturally, linguistically, and racially diverse school district and the first author of this paper, who works at a university near the district. The main school in which the majority of the teachers teach has about 800 students, across grades 6-8. Six of the eight teachers have been involved in the work for 4-5 years; two just joined the group when they were hired last year to teach 6th grade. Although the teachers have all taught at the middle school at some point in time, currently most of the teachers teach grades 6-8 mathematics and algebra, one teaches high school geometry, and one teaches multiple sections of 4th grade mathematics.

Our work is grounded in critical, sociocultural, and sociolinguistic perspectives, and as such, we see learning as related to how one participates in the discourse practices of a community. Our primary data source includes audio recordings of discussions from the study group meetings, which took place twice a month across the 5 years of the collaboration (approximately 16 sessions each year, one 4-hour meeting during the school day and another 1.5 hour meeting after school). We also examined the artifacts and information the teachers provided about their action research projects throughout the various cycles over the past four years. This included, for example, powerpoint presentations the teacher researchers did at a mathematics education conference, emails and journals they wrote about their action research projects, and a book chapter they co-authored with the first author of this paper that focused on how they use positioning in their teaching and action research.

We began by creating timelines of the work using agendas and field notes from the study group meetings. This information helped us reduce the amount of data by identifying where positioning-related discussions may have taken place. After narrowing the project discussion times, we used open coding (Esterberg, 2002) to code the nature of the focus of the discussions (e.g., whether they focused more on issues of authority or student status) as well as the various types of action the teachers reported taking related to positioning. We started with more recent meetings and worked backwards to see how the ideas appeared in previous years.

Preliminary Findings

Because we were still in the stage of open coding when this report was due, we share here broader scale findings about the changes in foci over time. We describe what they focused on about positioning but also some of the actions they described taking to focus on influencing student positioning. When we do our presentation, we will have more specific and finer grain sized findings to report. Generally, the year 1 discussions of positioning indicate that the teachers had not considered positioning in the ways described in the touchstone documents. They reported being aware of issues of social status related to things like popularity, but that they had not thought as much about this in relationship to *mathematics* learning. Their talk centered on their uncertainty about actions to take to counter positionings that they thought were not supporting student learning.

As they moved into their first cycles of action research in year 2, the talk about positioning focused on the positioning of mathematics. The teachers grounded these discussions about what kinds of tasks and activities they offered to students as well as what they expected students to do (e.g., how they would engage but also expectations for producing high quality explanations and justifications). Their action focused primarily on designing and finding high cognitive demand tasks to use with students. Toward the end of year 2, the talk about the positioning of mathematics shifted toward a slightly different kind of action: they identified the kinds of norms they could put in place, articulated a common set of goals they would work on, and planned for piloting new curriculum materials that would offer richer learning experiences for students (see Busby, et al. (2017) for more information). In year 3, all teachers used the same set of norms and goals and the teachers in grades 6 and 7 started to use the new curriculum materials. The shift in year 3, then, seemed to be away from the positioning of mathematics and more about issues of teacher authority (and the struggles associated with giving up control) and student agency (how they could get students to become more active participants).

By year 4 (2016-17), all of the teacher-researchers began to think about distributing authority more and focused on trying to get students to talk most of the time during whole group discussion. They continued to struggle, however, with the giving up of control and with some of the ways students seemed uncomfortable with being more active learners. Students' being uncomfortable with participating in more active ways, in fact, seemed to be especially acute in the 6th grade where students had come from much more traditionally structured mathematics classes in the elementary schools. Three of the teacher-researchers began to develop instruments they could use to gather information from students about their experience, which included Likert scale items about how students felt about various learning activities and with the mathematics. The items also included information about students' developing agency for their mathematical thinking. Two teacher-researchers also began to give weekly reflections that required students to write about something they had learned from other students in the class discussions, which helped the teacher-researchers understand status in their classrooms. Although year 5 is still underway, the teacher-researchers continue to create structures to support students to have more space and voice in the classroom. One teacher-researcher has students in front of the room and co-facilitating parts of some of the activities. Three others have decided to focus centrally on how bias might be impacting their expectations of

various groups of students along gender and racial lines. Thus, some of the shifts in attention to positioning in immediate classroom interactions have raised the prominence of student perspectives as well as how broader systems of privilege and oppression might be impacting the ways teacher-researchers interact with and support student learning.

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References

- Anderson, K. (2009). Applying positioning theory to the analysis of classroom interactions: Mediating micro-identities, macro-kinds, and ideologies of knowing. *Linguistics and Education*, 20, 291-310.
- Busby, L., Goff, C., Hanton, D., Herbel-Eisenmann, B., Jones, L., Loeffert, C., Pyne, E. & Wheeler, J. (2017). Supporting powerful discourse through collaboration and action research. In A. Fernandes, S. Crespo & M. Civil. (Eds.) *Access and Equity: Promoting high quality mathematics in grades 6-8* (pp. 59-76). Reston, VA: NCTM.
- Cohen, E. G. (1994). *Designing groupwork (2nd edition): Strategies for the heterogeneous classroom*. New York, NY: Teachers College Press.
- Esterberg, K. G. (2002). *Qualitative research methods*. New York: McGraw-Hill.
- Featherstone, H., Crespo, S., Jilk, L., Oslund, J., Parks, A., and Wood, M. (2011). *Smarter together! Collaboration and equity in the elementary math classroom*. Reston, VA: National Council of Teachers of Mathematics.
- Gresalfi, M. S. (2009). Taking up opportunities to learn: Constructing dispositions in mathematics classrooms. *The Journal of the Learning Sciences*, 18, 327-369
- Harré, R. (2012). Positioning theory: Moral dimensions of social-cultural psychology. In J. Valsiner (Ed.), *The Oxford handbook of culture and psychology* (pp. 191–206). NY: Oxford University Press.
- Harré, R. & van Langenhove, L. (1999) The dynamics of social episodes. In R. Harré and L. van Langenhove (Eds.) *Positioning theory: Moral contexts of intentional action* (pp. 1-13). Malden, MA: Blackwell Publishers, Ltd.
- Herbel-Eisenmann, B., Cirillo, M., Steele, M.D., Otten, S., Johnson, K.R. (2017). *Mathematics discourse in secondary classroom: A Practice-Based Multimedia Resource for Professional Learning*. Math Solutions.
- Herbel-Eisenmann, B., Meaney, T., Bishop Pierson, J., & Heyd-Metzuyanin, E. (2017). Highlighting heritages and building tasks: A critical analysis of mathematics classroom discourse literature. In Cai, J. (Ed.), *First compendium for research in mathematics education* (pp. 142-185). Reston, VA: National Council of Teachers of Mathematics.
- Herbel-Eisenmann, B., & Wagner, D. (2010). Appraising lexical bundles in mathematics classroom discourse: Obligation and choice. *Educational Studies in Mathematics*, 75(1), 43-63.
- Herbel-Eisenmann, B., Wagner, D., Johnson, K.R., Suh, H., & Figueras, H. (2015). Positioning in mathematics education: Revelations on an imported theory. *Educational Studies in Mathematics*, 89(2), 185-204.
- Wagner, D. and Herbel-Eisenmann, B. (2009). Re-mythologizing mathematics through attention to classroom positioning. *Educational Studies in Mathematics*, 72, 1-15.
- Wagner, D., & Herbel-Eisenmann, B. (2014). Identifying authority structures in mathematics classroom discourse—a case of a teacher’s early experience in a new context. *ZDM*, 46(6), 871-882.