Positioning Positioning Theory in its application to Mathematics Education Research

David Wagner
University of New Brunswick
Canada
dwagner@unb.ca

Beth Herbel-Eisenmann
Michigan State University
USA
bhe@msu.edu

Abstract

Positioning theory has been a powerful tool in our research of the teaching and learning of mathematics. In this paper, we describe the way positioning theory is used in the mathematics education field and connect that to the theory itself. Such conversations between theorists and theory users can be beneficial for both groups. We identify opportunities for elaboration of positioning theory based on our experiences of using the theory and seeing its use in our field. In particular, we complicate positioning theory's radical, yet warranted, focus on immanence. We also identify ambiguities in the theory's construction of storyline, and thus introduce a conceptual tool to help identify a range of storylines that might coexist in an interaction. We position all this within a storyline of scholarly interaction, and thus use our text as an example to illustrate our observations.

Key words

mathematics education, positioning theory, storyline, immanence, timescale

Introduction

Within research on mathematics education, Lerman (2000) identified a "social turn" and more recently Valero (2004) identified a "socio-political turn." With such turns of attention, researchers are increasingly in need of conceptual tools for interpreting people's interactions. Some of the scholarship that uses the language of positioning to describe human interaction draws on positioning theory, citing the seminal collection contributed by Harré and van Langenhove (1999). Some draws on related theories –

e.g., positioning in figured worlds (Holland, Lachicotte, Skinner, and Cain, 1998). Most often, positioning is not theorized.

We have used positioning theory to help us understand the way students experience mathematics classroom interactions. We have also contributed two theoretical pieces to a major journal in our field, in which we critique the use of positioning theory in the investigation of mathematics teaching and learning and raise questions about the source theory (Wagner and Herbel-Eisenmann, 2009; Herbel-Eisenmann, Wagner, Johnson, Suh, and Figueras, 2015).

In this paper, we outline questions arising from our observations of our field's use of positioning theory in order to develop conversation between theorists and theory users. In the context of the first Positioning Theory Symposium, we consider the way we position ourselves when referring to positioning theory, with special attention to mathematics education contexts and reference to our earlier critiques. We claim that a focus on understanding an interaction and using theory as a tool for that focus is significantly different from a focus on theory and the use of examples to support that theorization.

Positioning myths and theories

We find the focus on immanence as one of the most powerful features of positioning theory because it enables emancipation from powerful discourses; in a mathematics classroom (or anywhere), there is no exterior structure that 'forces' particular interactions. A focus on immanence illuminates discourse participants' freedom to conceive alternative practices. However, we want to problematize the theory's radical claim that *la langue* is a myth. Indeed, our research with mathematics teachers identifies a range of exterior authorities (Wagner and Herbel-Eisenmann, 2014), including the discipline of mathematics and other culturally-based norms, jurisdiction-mandated curriculum, and events in students' foreground, such as high-stakes testing.

In our field, many instances of positioning language feature researchers identifying students' positioning in relation to mathematics. Drawing on positioning theory, we note that mathematics, as an entity, does not exist in a classroom, except as mediated

through people in the interaction. It may be present in the artefacts in the classroom, but those artefacts have to be positioned by the people in the interaction. Nevertheless, we know, partly from the research that identifies positioning in relation to mathematics, that students and teachers think of themselves and others relating to mathematics. We reconciled this tension in our first theoretical piece on positioning (Wagner & Herbel-Eisenmann, 2009, p. 6):

> We recognize that myths are powerful: they often feel more real than anything. For instance, though race distinctions are a myth (constructed, not inherent), these distinctions are often the most powerful reality in the lives of people suffering the effects of racism. The word 'myth' refers to stories that are well known in a culture. With this sense of the word, calling a story a myth makes no claim about its veracity. Rather, it makes a claim that the story is very well known and formative in the way people think. Myths are stories people live by, so we claim it is possible for people to position themselves in relation to a discipline whether 'the discipline' is something real or not. Positioning in relation to the discipline is commonplace because there are powerful mythologies relating to mathematics in academic cultures – for example, 'mathematics is useful', 'mathematics is independent from values', and 'mathematics is the queen of the sciences'. Thus we argue that even attention to a transcendent discipline can have its place in consideration of immanent experience. People take their storylines from their myths.

Theories represent a form of myth that pervades academic discourse. For example, in this paper we position ourselves in relation to positioning theory. We write about how we and others have used the theory and are critiquing the theory. This relationship might otherwise be described as us positioning ourselves in relation to other theorists. When we use the theory, however, we are more interested in how it guides our choices than in our relationship to the scholars who have been influential in its development.

Storyline repertoires

As noted above, storylines, which inevitably index transcendent agents, are used to structure interaction. We find the need for more clarity on this conundrum in relation to positioning theory's radical and warranted focus on immanence. In our read of

positioning theory publications, we have noticed a lot more attention to positioning than to storyline. In our read of mathematics education research that uses positioning language (including work that cites positioning theory), we notice a range of ideas about how to identify positioning and a wider yet range for storyline. Indeed, what some call positioning, others might call storyline. Nevertheless, a unifying characteristic of this work is the emphasis on fluidity of interaction structures, and connections to grand narratives.

When we use positioning theory to understand a mathematics learning situation it is important for us to know how to identify positioning and storylines. Harré (2012) recognized a distinction that we had noticed in various accounts of positioning theory, and which warrants more attention; he distinguished between positioning as "the *attributes of a person or group* relevant to positioning …[and] an *attribution of rights and duties*" (p. 191, italics added). In other words, do we identify parallels to metaphorical interaction storylines, such as martyr-friend interaction (e.g., van Langenhove and Harré, 1999)? Or do we describe the rights and duties apparently present in an interaction without such metaphor (e.g., Moghaddam, Harré, & Lee, 2008)? Or both?

Furthermore, we see a range in scope of narrative for any storyline in an interaction. Indeed, our first critique of the use of positioning theory in our mathematics education field was that researchers typically identified 'the' positioning in any interaction, as if there could only be one. We have sought to remind our colleagues that positioning is negotiated in any interaction and that multiple storylines could be at play simultaneously (Wagner and Herbel-Eisenmann, 2009). It is especially problematic for someone outside an interaction (e.g., a researcher) to presume to say what the storyline or positioning is in an interaction.

When we begin to take seriously the range of storylines that may be indexed in an interaction, we increasingly realize their range in scope. To help with this, we have connected Lemke's (2000) notion of timescales to positioning theory (Herbel-Eisenmann, Wagner, Johnson, Suh, and Figueras, 2015). He used a logarithmic scale to index the scope of a narrative. In classrooms, there are communication acts (10^{-1} to 10^{2} seconds in duration), which can be taken as instances of larger narratives like

curriculum (10^7 to 10^8 seconds) or identity development (10^9 seconds), and even larger narratives associated with mathematics or gender (more than 10^{11} seconds, which is about 3000 years), for example. We find it challenging to identify how these different narratives relate to each other. In this article, we drew a diagram that varies (considerably) from the various forms of the positioning theory triad, and identifies how communication acts both contribute to and draw from the many levels of narrative at work in a classroom (or other context).

We again turn to reflect on the above in relation to our research and our participation in this symposium. When we consider our quest to understand what is happening in a mathematics classroom we are active in the scholarly tradition of theory building, and the human tradition of capturing experience with writing. But we are also engaged in more general narratives like colonialist discourses, as we have used a European theory to describe interaction in Aboriginal contexts, and judgment discourses, as we review and write academic articles. It may do us a disservice to focus on one storyline to the exclusion of others for interpreting an interaction.

Discussion

We have additional questions about positioning theory – for example, the inconsistency of the elements in the positioning triad, the unexplained variation in diagrams placing the elements at the nodes or the connectors in the triad/triangle, the inclusion of 'positioning' as an element in a construct that is also called 'positioning', and the apparent undeveloped distinction between 'position' and 'positioning.' More importantly, from our work in contexts that have significant power dynamics, we also question the unproblematized claim that people have power to negotiate positioning. Negotiation is always possible, but more inviting for some than others.

We argue here that our position as users of positioning theory reveals opportunities for clarification within the theory. At the same time, we acknowledge the important role positioning theory has played in our work, and we appreciate the work on this theory from others who have developed it from a different positionality.

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