“The Disabled Body Speaks Back”; Emotion as Central to Embodiment in Mathematical Experience

Rachel Lambert, University of California Santa Barbara, rlambert@ucsb.edu
David I. Hernández-Saca, University of Northern Iowa, david.hernandez-saca@uni.edu
Rebeca Mireles-Rios, University of California Santa Barbara, rmireles@education.ucsb.edu

Abstract: In the spirit of interdisciplinarity, we offer an analysis of how theoretical tools from Disability Studies can reframe problems that have been troubling to sociocultural theory in mathematics education. In particular, we offer the theory of complex embodiment (Siebers, 2008) to help theorize embodiment as we work to understand the role of disability in learning mathematics. Disabilities such as Attention Deficit Hyperactivity Disorder (ADHD) are often understood as either medical, completely within the individual body, or socially constructed, completely outside the individual body and located in social practices. Yet ADHD is both profoundly experienced and embodied, and yet simultaneously socially constructed through cultural practices of schooling (Lambert 2019). We work to extend these theoretical frames into sociocultural theory as used within mathematics education, which we argue has lacked a way to understand embodiment as central to learning. As Disability Studies scholar Tobin Siebers wrote, “The disabled body pushes back.”

Keywords: Disability Studies, embodiment, emotion, mathematics, narrative

Introduction

Disability Studies is an interdisciplinary academic field founded by activists with disabilities (Linton 1998) who reject the medical model of disability in favor of the social model, in which disability is constructed by inaccessibility, not individual deficit. While the social model has been an effective theoretical and activist tool, it has been critiqued within DS because the social model creates a disconnect between the body and disability. Using data from a longitudinal research project on identity in mathematics (Lambert 2015, 2017), we use the theory of *complex embodiment* (Siebers 2008) to analyze narratives from Desi, a Latina with Attention Deficit Hyperactivity Disorder (ADHD) to explore both how disability feels to Desi, and how disability is constructed in her mathematics classroom.

Conceptual framework

In *Disability Theory* (2008), disabled scholar Tobin Siebers rejects both the purely social model, as lacking in attention to embodiment, and the medical model, which defines disability as individual and requiring medical intervention. Siebers defines disability as “a social location complexly embodied” (p. 14). In this formation, disability is not solely within the body, within impairment. Nor is disability a social construction. It is both, from the beginning. He proposes new ways of integrating social and bodily aspects of disability, particularly by proposing the concept of *complex embodiment*. Complex embodiment allows for a particular kind of situated knowledge, one that “adheres in embodiment” (p. 23). Embodied knowledges are themselves produced through cultural processes; language to describe our bodies does not spring from a neutral source. Thus when we describe a body, we use concepts formed in social worlds, which in turn shape our bodies. Following feminist DS scholar Carol Thomas (2007), who defined the psycho-emotional model of disability as “a form of social oppression involving the social imposition of restrictions of activity on people with impairments and the socially engendered undermining of their psycho-emotional well-being” (p.73), we call attention to the importance of emotion in embodiment. Furthermore, based on a qualitative research synthesis, we (Iqtadar, Hernández-Saca, & Ellison, 2020) found that students of color with disabilities in K-16 experienced psycho-emotional disablism as they engaged in acts of resistance and performance to master narratives of disability at the intersections of power and identities through identity work.

Methods

This data was collected as part of a 2-year longitudinal research study on how Latinx middle school students with disabilities at their intersections of power constructed identities as mathematics learners (Lambert 2015; 2017; 2019). Data included multiple interviews with 9 focus students and 4 teachers, participant observation and field notes in 26 mathematics classes, and video recordings of 13 of those mathematics classes. Desi was chosen as the

case to explore these two theories because her narratives consistently included emotion, embodiment, and explicit discussion of disability. In other papers on this project (Lambert 2015, 2017), the first author has used sociocultural theory to understand individuals developing in figured worlds (Holland, Lachiotte, Skinner, & Cain, 1998). To understand the figured world of the classroom, the first author relied on ethnographic field notes and video analysis of the classroom, as well as interviews. To understand individual students' development within this figured world, the first author used interviews with students, contextualized with field notes and video analysis. Narrative analysis (Riessman 2007) was used to analyze Desi's narratives thematically, structurally, and dialogically, looking for participants' meaning making around ability, disability and mathematics. While the first author collected data and began analysis, we have participated in a reanalysis of data as a collective, stressing dialogic and relational analysis of student narratives.

The research site was a middle school in a predominately Latino neighborhood, whose students were 91% Hispanic, 6% African American, and 3% white and Asian. Nine percent of the students were classified as English Language Learners. Fifteen percent of the school qualified for Special Education services, each with an Individual Education Plan (IEP). Students with disabilities were educated in general education classrooms.

Findings

While the larger study included nine focus students, this paper focuses on Desi. Twelve years old at the beginning of the study, Desi identified herself as a "girl" and "from the Dominican Republic." Desi is bilingual in Spanish and English. Desi identified most clearly as a poet and an activist, one who did not see mathematics with the same passion as she did literacy. Desi repeatedly narrated mathematics class as a place in which she felt strong emotions, mostly negative ones: "confused," "butterflies," "panic," "I blank out," and "I loathe." She described learning mathematics in elementary school as, "I hated it [smiling] with all my guts."

When the first author observed Desi in her sixth-grade mathematics class, she noticed that while Desi chatted with friends before class, she did not work with peers during class. In field notes, Desi was described as sitting very still, frequently not moving or speaking with other students, even as the students around her worked together boisterously. She sat quietly until a teacher came over to work with her, and then would engage with the teacher in the mathematics. In interviews, her sixth-grade teachers described her as "needy," noting that her behavior was "apathy-based because she is just disinterested." One teacher noted that there have been a few moments that were exceptions when Desi was "really into" her math work and "loves it when she knows." Both teachers used psychological notions to explain and understand Desi and stressed her passivity and apathy in math class. At one point her sixth-grade math class, Desi told me, "Normally I would be zooming out. We zoom out" during class. That was "why most of us like to sit next to the window," cause then "I am in my own little planet" and "in my world." Here we have a collective, embodied description of those who "zoom out." That group, according to Desi was herself and a group of boys, who also had IEPs. Her description of zooming seemed entirely internal, as Desi didn't move her body during class, and her body was unusually still. Desi's description of zooming as related to attention challenges normative concepts of ADHD, which stress an excess of energy or hyperactivity.

When Desi moved to seventh grade, she shifted into a more engaged presentation in mathematics. Her teacher, Ms. Marquez, rebuked her for waiting for a teacher, stressing that Desi's individual effort mattered. Desi endorsed that narrative, describing in subsequent interviews how important effort was in mathematics. In contrast to sixth-grade, Desi began engaging with her peers and discussing mathematics. When interviewed early in her seventh-grade year, Desi's narratives about mathematics emphasized her perceptions of how "good" students learn mathematics through a particular kind of attention. When asked, "Who stands out in your math class?" she named certain students as "good." She narrated how these students learned: "They pay attention [*gestures hands moving straight forward*]. It is like they are a movie, or a computer, and they just suck it all in [*gestures with hands around her brain*], like a sponge, until they absorb every little piece of it [*gestures grabbing tiny pieces of something in front of her*]." Notice how closely she relates ability to attention, beginning with "they pay attention." The primary characteristic of the "good" math student is attention, and then memory, or being a "sponge." Her final gesture suggests that the kids are sucking in things—understanding mathematical knowledge as isolated bits and pieces. In contrast, Desi described her process during tests as beginning with "panic" and then "forgetting"; "on tests I tend to like panic, and then if I like study something, I for--, it is like I blank out completely, So with tests, I don't test well." We notice how her final phrase, "I don't test well," seems to echo an adult phrase in which learning is separated from performing such learning on a test. Desi calls attention to how difficulties memorizing in mathematics FEEL. For Desi, and other students in this classroom, this process begins with stress, panic, and feeling nervous. When you feel those things, you forget, or blank out.

Desi described herself as someone who needed time and patience to learn mathematical concepts, describing herself as "slow" (Author, 2019). Desi insisted that she could learn the same amount as others, but at

a slower pace. She described herself as, "I am the type that I would take a minimum at least the WHOLE DAY [*stress*] to learn something like some sort of problem if it is something new, and I would have to keep on reviewing and reviewing until it is finally stuck in my head." Here Desi narrated her process of learning something new, emphasizing in the construction and content of her narrative how long this takes. She used stress in the second line to emphasize time, the feeling of how long this takes to learn something new. And even then she was not done: "I would have to keep on reviewing and reviewing until it is finally stuck in my head." In her next utterance, she contrasted her process with, "those types of math learners who I don't know how, but they like know everything."

In her final interview of seventh grade, Desi repeatedly discussed the importance of effort, which her teacher, Ms. Marquez, had stressed throughout the year. According to Desi, it did not matter if a person has a disability, if they "put in the effort" they can succeed. In the following narrative, Desi described how one of her friends did not know the importance of effort. She structured her narrative as a hypothetical conversation; "It's like they feel like, you have to be able to be this or that, and even if you have a disability like, cause, I have ADHD or something, some people say, that they are amazed at the fact that I can actually learn and pay attention and try to pay attention when it is, like, hard for me." Desi presented voices of anonymous individuals who ignore the role of effort, instead seeing success in mathematics as innate: "you have to be able to be this or that." In the middle of the narrative she used ADHD as an example. These unnamed individuals seemed to be surprised that Desi can achieve in school. Desi suggested that these unnamed critics believe that ability is fixed and that those who have a disability are incapable of learning. She strongly disagreed, and in the next narrative she expanded on this theme, again emphasizing the role of effort.

> And then many people are always just like, has to do with abilities that you have and it has to do with the fact that you have to be like, if you are not good at this you are not good at it, and if you are not good at it at all then you have to be like in special ed or something and I am like, no, that's a lie. You can do it, it's just that you are not putting in the effort.

Desi referred to a narrow conception of mathematical ability: either you are "good at it" or not. She suggested that some believe that mathematical ability is static, creating a binary between those who are good, and those "in special ed." For Desi, separation into special education is tied to the notion of innate ability in mathematics. Both times that Desi used formal disability discourse in this narrative she added, "or something," ("ADHD or something" and "special ed or something"), suggesting distance from medical terms for disability. Desi critiqued the theory of innate ability in mathematics, taking up an alternative voice from her classroom teacher—effort alone determines academic success. Desi appears to take issue not with the naming of disability, but the use of such categories to separate learners in categories of capable and not.

Discussion

Recent theorizing in Disability Studies allows analysis of how embodiment and the social are interrelated and reciprocal, allowing simultaneous analysis of the political and the embodied. Using narratives of Desi, we explored how Desi theorized how disability in mathematics is embodied, as well as how binaries limit potential for those with disabilities in schools. Her narratives call attention to how math class feels, and the political and relational implications of those feelings. Desi's theorizing lends credence to complex embodiment, as envisioned by Siebers (2008). Siebers argues that disability is produced in interaction, through a binary of ability versus disability. Desi critiqued this binary explicitly, naming the binary as either you are "good at it" or "you should be in special ed." This political theorizing is not done in the abstract, but in and through relationships. Her narratives are both political and relational, born in and through relationships of power with teachers and peers.

For Siebers, "disability is a social location, complexly embodied" (2008, p. 9). Desi described two fundamental challenges to learning math: paying attention and remembering. Paying attention related to ADHD, to being a "zoomer" as she called it. Remembering is connected to anxiety, "panic" or "blanking out," as well as coming to know herself as "slow." So where is the disability that is slowness? Is it internal? Is it a processing issue, like much of the research on LD would suggest? Is it difficulties in attention as ADHD would suggest? And then where is disability located? It is produced through the context and practices of the classroom, particularly a focus on speed, but also felt through engagement in the practices of math class, like memorization. Unlike some of her classmates, Desi did not deconstruct these narratives about speed as connected to mathematics learning. She never questioned the importance of speed in mathematics, even as this emphasis appears to label her as ADHD (because of difficulty paying attention and thus learning with the speed of her classmates).

Instead, Desi took up a narrative of slow, which appeared to create space between the binary of *fast*/*struggle*. This reclaiming of the word "slow" we identify in Desi mirrors a wider shift that reclaims slowness

in relation to speed (e.g. the "slow food" movement). Insisting on "slow" as a possibility for a kind of math learner, one that is not lesser, just different, could be a way to resist the anxiety of mathematical memorization. Slow opens a necessary space between those who get it immediately, and those who do not. Like "I don't test well," slow preserves competence, while also insisting on a reframing of the normative conditions of schooling. When we pay attention to the body in mathematics, providing what Siebers describe as a "realistic" portrait of disability, we can see avenues of political resistance, of student agency. We can also see where we can imagine new possibilities of mathematical competence for students, democratizing time, and reclaiming slow.

While research in identity in mathematics education around gender and/or race prioritizes narrative (Solomon 2012; Martin 2009), in research on embodiment, the body is mostly observed. While multiple methods will elucidate aspects of embodiment, we see narrative as particularly relevant to understanding complex embodiment, or how embodied experience is represented through cultural representations. We wonder how observation from the outside will miss the insights that intersectionality offers. As Desi demonstrates, narratives can be rich sites for material and political analysis, particularly in combination with ethnographic data or video analysis. While Desi's sixth-grade teachers describe her using the term "apathy," her narratives tell a story about intense feelings. While Desi does not perform anxiety by pounding on the table, or raising her voice, she narrates the experience of not knowing as intense, as "panic", "butterflies" and "hate." This difference between observed behavior and narratives suggests both may contribute to understanding of emotion in mathematics.

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