EXAMINING THE INTERACTIVE POSITIONS AND STORYLINES OF AN EMERGENT BILINGUAL LEARNER

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The U.S. storyline of emergent bilinguals has historically failed to highlight the mathematical and linguistic assets of this group; instead, it has primarily focused on providing support. To disrupt this narrative, a case study of one elementary teacher, Ms. Bristow, is presented. Ms. Bristow's discursive practices and pedagogy illustrate how she fostered the storyline of mathematical competence for an emergent bilingual Latina by positioning her in ways that called attention to her mathematical thinking. Ms. Bristow's creation of mathematical goals and participatory expectations provided the foundation for classroom interactions that enabled the student's storyline to come to fruition and be appropriated by peers.

Keywords: Equity and Diversity, Classroom Discourse

Although emergent bilinguals (EBs) are a diverse group of students with a wide array of mathematical and linguistic competencies, they are not positioned in the U.S. narrative as such (de Araujo, Smith, & Sakow, 2016). Frequently, EBs are positioned in ways that do not focus on their mathematical competencies, but on their linguistic deficiencies. Such narratives have repercussions in the classroom and can determine ways teachers interact with EBs (Wood, 2013; Yamakawa, Forman, & Ansell, 2009; Yoon, 2008).

Discourse is critical to mathematical learning (National Council of Teachers of Mathematics, 2014) and classroom discourse can facilitate or restrict this learning (e.g., Esmonde & Langer-Osuna, 2013; Turner, Dominguez, Maldonado, & Empson, 2013). Discourse that is used to control or silence EBs ultimately diminishes opportunities to learn mathematics and acquire English while maintaining the status quo (Battey & Leyva, 2016; Yoon, 2008). Therefore, teachers must be attentive to the ways their discursive practices and mathematical and participatory expectations influence EBs mathematical learning in the classroom.

Positioning theory offers one way to examine how teachers' discursive practices can facilitate mathematical learning for EBs and offer counter-narratives of who is mathematically competent. Through discursive practices, teachers position students in ways that contribute to their storylines as mathematics students. When teachers position students in ways that value their mathematical competencies and diverse cultural assets and experiences, a storyline of mathematical competence can be fostered. All too often, however, Latin@ EBs are shut out of such storylines (Brenner, 1998; Gutiérrez, 2008). To understand how teachers can establish storylines of mathematical competence for Latin@ EBs, a single case study was conducted of a teacher who had learned about positioning.

Positioning and Mathematical Learning

In mathematics education, positioning theory has been used to analyze social interactions at the individual (e.g., Yamakawa et al., 2009), class (e.g., Esmonde & Langer-Osuna, 2013; Turner et al., 2013), and national (Herbel-Eisenmann et al., 2016) levels. Although this research has demonstrated the importance of positioning to mathematical learning, mathematical identity, access to mathematics, and the field of mathematics education, it has not yet identified how classroom teachers establish storylines of mathematical competence for EBs.

In this study positioning theory (van Langenhove & Harré, 1999) was employed as a conceptual and methodological framework to examine discursive practices between a teacher and a Latina EB.

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Positioning theory is composed of three central components: communication acts (Herbel-Eisenmann, Wagner, Johnson, Suh, & Figueras, 2015), storylines, and positions. *Communication acts* are the ways people verbally or non-verbally communicate (e.g., gestures) (Herbel-Eisenmann et al., 2015). *Storylines* are the "broad, culturally shared narrative that acts as the backdrop" (Herbel-Eisenmann et al., 2016, p. 104) to social interactions. Oftentimes these refer to the categories that people give others in specific situations, such as teacher/student or man/woman, that define the expectations and conventions of interactions in the situation (Herbel-Eisenmann et al., 2015). Within each social interaction there are multiple storylines at play all drawn from and on participants cultural, historical, and political backgrounds and experiences that occur on different scales (e.g., utterance, episode, state, national, etc.) and define the expectations and conventions for interactions in the situation (Herbel-Eisenmann et al., 2015). For example, in the U.S. the storyline of mathematical success is often characterized by speed and accuracy, as opposed to deep conceptual thinking. Manifested in the classroom, this storyline is established by the teacher and fostered through communication acts in socially recognized ways (e.g., rewarding quick, correct answers).

The socially recognized ways people employ storylines are referred to as *positions*. Within storylines, people are metaphorically positioned or have a position, which refers to one's "moral and personal attributes as a speaker" (Harré & van Langenhove, 1991, p. 395). This position is relational, directly tied to the power one has compared to others, and is dynamic—each communication act results in a re-positioning of oneself and others. Moreover, one can position him/herself (reflexive position) or can be positioned by others (interactive position) (van Langenhove & Harré, 1999).

A teacher's position in the classroom situates them as the catalyst and leader for the establishment and maintenance of norms that determine EBs positions and storylines in mathematics (Yackel & Cobb, 1996). Furthermore, since peers reinforce positions and storylines designated by the teacher, he/she must position students in ways that call attention to and highlight EBs unique cultural backgrounds and knowledge bases in order to have opportunities to participate and learn (Turner et al., 2013; Wood, 2013; Yoon, 2008). Thus, within any classroom, teachers' positioning plays a key role by determining *who* has the right and duty to participate and learn. As a result, this study sought to answer the question: *In what ways does an elementary teacher use communication acts to interactively position and foster storylines of EBs in the mathematics classroom?*

Methodology

To answer the research question of this study, data are drawn from a large, longitudinal professional development intervention study that spanned three years and included four female, monolingual third grade elementary teachers. The intervention focused on EBs development of mathematics and language, enhancement of mathematics curriculum materials, and productive classroom interactions (see Chval, Pinnow, & Thomas, 2014 for more information). Over the course of the year, the researcher met with each teacher 9-12 times to discuss the themes in the context of lesson planning or debriefing. In addition, the researcher pushed each teacher to create mathematical goals for each EB in their classroom.

The present study used a single case study design (Stake, 1995) to examine one teacher, Ms. Bristow. Ms. Bristow taught in a Midwestern city with an approximate population of 115,000 in a school that was predominately white (>70%) with less than 10% of the student population Latin@ and over half of students receiving free and reduced lunch. At the start of the intervention Ms. Bristow had two years of elementary teaching experience with no prior education in pedagogy for EBs or experience teaching EBs. Thus, the first year of the study coincided with her first opportunity to teach EBs. Thereafter, in each year of the study, Ms. Bristow had 1-4 EB Latin@s.

Data Selection and Analysis

To understand the ways Ms. Bristow constructed storylines for her EBs through interactive

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positions a subset of the data was analyzed—the first full month of the third year of the study. This subset was selected for two reasons. First, the establishment of storylines to facilitate EBs mathematical learning are heavily influenced by the teacher. Consequently, the teacher lays the foundation for future classroom interactions in the first month of the school year. Second, Ms. Bristow began learning about positioning and its importance in the classroom at the start of the intervention. Hence, after two years she had developed a greater knowledge base and mastery of positioning practices.

In the third year of the study, Ms. Bristow had one EB Latina, Alexia, who had relocated from a southwestern state two and a half weeks before the start of the school year. Ms. Bristow described Alexia as a quiet, shy, and reserved student who was often seen on task. Mathematically, Ms. Bristow explained Alexia had background knowledge that differed from her peers and, as a result, would bring up unfamiliar topics to peers in class.

Data analysis was conducted on a subset of data collected in September—the first month of the study (in the third year). Videos and transcripts of whole-class mathematics instructional interactions between Ms. Bristow and Alexia were analyzed. Classroom observations occurred five times, on September 6, 7, 15, 22, and 27. All classroom videos were reviewed and each instructional interaction between Ms. Bristow and Alexia was transcribed. Each transcription included verbal and non-verbal communication acts. In addition, transcripts of audio recorded one-on-one professional development intervention sessions were analyzed. These 40-50 minute sessions occurred on September 8 and 27.

The transcripts of Ms. Bristow's communication acts were open coded (Strauss & Corbin, 1990) at the utterance and turn taking levels to identify the interactive positions of Alexia (see Figure 1). These positions were analyzed sequentially to identify and construct the storylines Ms. Bristow fostered for Alexia as a mathematics student in the month of September.

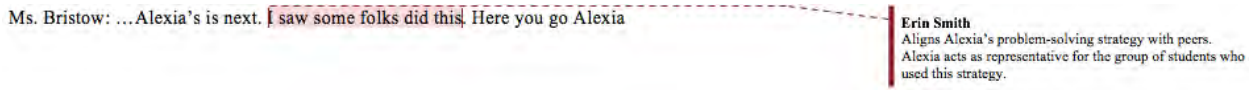

Figure 1. Example of a coded communication act in a classroom transcript.

Findings

Ms. Bristow established and fostered Alexia's storyline as a mathematics student in multiple ways. First, she constructed pedagogical goals and participatory expectations for Alexia focused on her mathematical thinking and learning. Second, she employed communication acts to interactively position Alexia in whole class interactions where her mathematical thinking could be demonstrated. These interactive positions resulted in peers' appropriation of Alexia's storyline of mathematical competency.

Mathematical Goals and Participatory Expectations

In the intervention, the researcher consistently asked Ms. Bristow to create short and long term goals for her EBs at the start of the school year, but did not identify or specify the types of goals that these should be (e.g., what mathematical content, language competencies, and/or social competencies). This act of explicit goal setting for specific children facilitated Ms. Bristow's use of communication acts to position EBs in the mathematics classroom.

In September, Ms. Bristow described the goals she created for Alexia in her first meeting with the researcher on September 8.

Researcher: So what would be your goals for Alexia for this year?
Ms. Bristow: I think I want her to be a kid that is able to have strong mathematical thinking without just having to rely on just a set of rules. You know? I want her to be able to approach

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> problems and be able to think of lots of different ways to solve a problem. And I don't...sometimes I worry with her that she will get trapped in an algorithm for everything because of the drilling that I think she is getting.

Ms. Bristow could have identified many different types of goals, however, as evidenced in her response the storylines and positions she wanted to facilitate for Alexia in her classroom were focused on her mathematical thinking. Specifically, a desire to increase Alexia's flexibility in mathematical thinking ("think of lots of different ways to solve a problem"), increase her mathematical reasoning abilities, and reduce her reliance on algorithms. These goals strictly attended to Alexia's mathematical thinking and learning and did not include or refer to her status as a language learner or newcomer in the school and community. In this way, Ms. Bristow began to construct a storyline of mathematical competence through her pedagogical goals, which were reified through classroom interactions.

Ms. Bristow was aware of the importance of participation for EBs' mathematical learning based on her involvement in the intervention. Consequently, Ms. Bristow intentionally positioned and solicited participation from Alexia in ways that would facilitate her mathematical learning. This was also described in the September 8 meeting with the researcher.

> As far as her [Alexia] participating, I try to get her to participate in some capacity in every lesson. I try to give her the opportunity to choose a partner that she is comfortable with. Because she is a little bit more reserved. And, I use her name in the problems. I used one of the problems that she had written in that word problem that the kids did with each other... I am trying to make her feel like a part of the class community and utilize her work and her name in as many different things as I can. I am trying to make her feel included.

Ms. Bristow clearly described the actions she took at the start of the school year to enhance Alexia's participation and mathematical learning. This included the incorporation of her name in mathematics problems, the option to select a partner, and the use of mathematics problems Alexia had written. What is most notable about Ms. Bristow's participatory expectations was her goal to seek out Alexia's participation in *every* mathematics class. Such actions worked to create a classroom community where Alexia—a newcomer and the only EB—could be successful in.

In addition to the above quotes, the analysis of video data demonstrated Alexia's participation took multiple forms. Ms. Bristow invited Alexia to the board to share her mathematical ideas, called on her in whole class discussions to explain her thinking, and displayed her work on the board to discuss in front of the class. To illuminate these practices, classroom examples are presented.

Sharing Ideas at the Board

Ms. Bristow commonly invited students to the board during discussions to share their mathematical thinking. In contrast to other teachers (e.g., Brenner, 1998; Yoon, 2008), Ms. Bristow frequently extended this invitation to Alexia and did not allow her to be a bystander. These actions were seen in the first day of classroom observations for the study, September 6. On this day, Alexia was invited to the board at the start of the lesson to share her mathematical ideas about a problem the class discussed. This communication act (i.e., Ms. Bristow's invitation to the board) interactively positioned Alexia in three ways: as a student who possessed mathematical ideas; as a student who would be an active participant in the global classroom conversation of mathematics; and as a student who was in the role of a teacher—a physical and metaphorical position of power. Together, these positions worked to establish the storyline of mathematical competence for Alexia publicly and counter deficit views of Latin@ students in mathematics (Gutiérrez, 2008).

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What Are You Thinking?

At the start of the school year, Ms. Bristow established the expectation that *all* students—Alexia included—would share their ideas frequently and publicly. On the same day that Alexia was invited to the board to share her mathematical ideas (September 6), Ms. Bristow asked Alexia to share her mathematical thinking at the close of a lesson. In this lesson, students had played a game with a peer where they drew four cards each, made the greatest number they could, and then compared their numbers to determine a winner. The whole class discussion was framed around an example from a pair of students. To start the discussion, Ms. Bristow stated,

> Okay so…I have got two cards that I wanted to talk about today. Okay. Let's see…okay so Lamar and Adam. I thought that this was an interesting one. Adam got 9,760 and Lamar got 9,761 Why is that an interesting one? Why might that be an interesting one? Alexia what do you think?

At the start of this discussion, Ms. Bristow immediately asked Alexia what she thought about the selected numbers. This is an interesting question to pose Alexia as it asked her to not only consider how to compare the two values, but also the pedagogical decisions of Ms. Bristow (i.e., Why this example? What is important about this pair of numbers? What can we learn from them?). In this way, Ms. Bristow's communication act interactively positioned Alexia in two ways: as a student who can compare numbers in the thousands and as a student who can consider the pedagogical importance of this specific example. These two positions actively contributed to and reified Alexia's storyline of mathematical competence.

The next day, Ms. Bristow continued to invite Alexia into the classroom conversation of mathematics by soliciting her mathematical thinking. On September 7, Ms. Bristow began the lesson by modeling a game students would play with a peer where each player draws six numeral cards and makes two two-digit numbers "that, when added, give you a total that is close to 100." In the demonstration, Ms. Bristow first drew the cards, 1, 1, 5, 8, 3, 4 and wrote "_ _+_ _=__" on the board. Then, she invited the class to identify the best numbers to use, stating "Is there a number you could make or a combination you could make with just using those four of the six cards? Alexia, what are you thinking?" Like the day before, Alexia was the first student to be called on after Ms. Bristow initiated this whole class discussion. Ms. Bristow's question is interesting because it does not ask Alexia what are two numbers she could use, but what she was *thinking*. This communication act positioned Alexia as a student with mathematical thoughts who could strategically compose values to win the game. Moreover, it was the second time in *this* class that Ms. Bristow had asked Alexia what she was thinking. Furthermore, the questions posed to Alexia to describe what she was thinking were not low level or required a simple response, but challenged her to think critically and exercise a second language. Such instructional decisions may be directly tied to Ms. Bristow's pedagogical goal of developing strong mathematical thinking and reasoning skills for Alexia.

Sharing A Problem-Solving Strategy

Ms. Bristow often used student work (displayed on the board) at the end of a lesson to provide an opportunity to reflect on or share peers mathematical thinking. On September 15, Alexia was one of three students asked to discuss their problem-solving strategy (see Figure 2) of the peer written problem, "Sarah looks in her desk. She found 23 crayons, 14 pencils, and forty-nine crayons. How many crayons did she find in all?"

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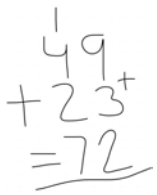

Figure 2. Alexia's problem-solving strategy.

Ms. Bristow: …Alexia's is next. I saw some folks did this. Here you go Alexia.
Alexia: *((comes to board))* I crossed out this. I crossed out this *((refers to "14 pencils"))* because if you say how many crayons are, did she find in all it doesn't say the pencils, so I crossed that out and I wrote this for this problem. *((points to algorithm))* First I wrote down the problem, then I put a plus sign here *((points to plus sign on right))* because I wanted to see 9 plus 3 is what. And it was, it was 12, so I put a 1 up there *((points to carried 10))* and I put a 2 there *((points to sum of ones column))*. Then I added these up 1 plus 4 plus 2 is 7 and I got 72.
Ms. Bristow: Questions and or compliments for Alexia. Keri
Alexia: Keri
Keri: I like how you thought about the, the answer.
Alexia: Mary
Mary: I like how you re-grouped.
Ms. Bristow: So that 1 where you say, that you put that 1 on top, what does that 1 representing? Is that one thing? Or what is that 1?
Alexia: It represents the 10 and so this is the tens place *((points to tens column))* I put it in the tens place.
Ms. Bristow: Yeah, so she actually took that 12 and put 2 of those loose ones on the side and then that one group of ten and added it to the 40 and 20 to make 70 and then we have the 2 loose ones to add to it. Alexia, I really appreciate you sharing. Thank you so much. *((class claps))*

This interaction represents another way Ms. Bristow solicited Alexia's participation. In this instance, Alexia was provided an opportunity for extensive mathematical talk. As a result, she was provided a chance to explain how she considered the information presented in the problem, determined what was erroneous, and then calculated her answer through an algorithm.

This opportunity to share her thinking was unique in the way it leveraged and elevated Alexia's status in the classroom and contributed to the storyline of mathematical competence. First, Alexia was one of only three students asked to share their thinking in this class. In this way, Ms. Bristow signaled Alexia was a competent mathematical student and her thinking was worthy of attention and discussion by her peers. Second, Ms. Bristow prefaced Alexia's discussion with the statement, "I saw some folks did this." As such, Ms. Bristow aligned Alexia's mathematical thinking with her peers and simultaneously enabled her to represent the group of students who used this problem-solving approach.

Regarding Alexia's mathematical thinking, Ms. Bristow also used this interaction to probe and clarify her ideas further in front of the class with her inquiry of the carried ten. This allowed Alexia to elaborate on her problem-solving strategy through mathematical discourse and illuminate how she understood the mathematical representation of the algorithm. An instructional decision that may be directly tied to Ms. Bristow's mathematical goal of increasing Alexia's flexibility in mathematical thinking and a reduction in the reliance of algorithms. Following Alexia's response, Ms. Bristow re-voiced her contribution, which acted to amplify her thinking to ensure all students had heard it and,

reinforced her position as a student with valuable mathematical ideas.

This interaction also illuminates how Alexia's peers perceived her mathematical thinking and began to appropriate the storyline of mathematical competence. This is most evident in the targeted compliments Keri and Mary provided on Alexia's mathematical thinking. Unlike the two peers who also presented their mathematical thinking, Alexia was the only student who received compliments. This act of public recognition—a practice Ms. Bristow cultivated—is an example of how her interactive positioning of Alexia was taken up by peers, which fostered her mathematical success.

Discussion and Conclusion

Ms. Bristow offers a case of a monolingual elementary teacher who used of her position of power to construct a storyline of a mathematical competence for Alexia, a Latina EB, through communication acts and interactive positions. An examination of the data revealed Ms. Bristow initially established mathematical goals and participatory expectations focused on Alexia's mathematical thinking—not on her status as a newcomer Latina EB—that grounded future classroom interactions. Moreover, Ms. Bristow did not isolate Alexia in the classroom, allow her to be a spectator, or ask closed or simplified questions, but regularly invited her to share her mathematical thinking publicly, which provided opportunities for Alexia to use mathematical discourse—a critical aspect of mathematical learning. These communication acts worked to establish and foster Alexia's position in a storyline of mathematical competence and counter the narrative—and teachers' beliefs—that Latin@ EBs need mathematical support (Chval & Pinnow, 2010; de Araujo et al., 2016; Polat & Mahalingappa, 2013).

Given the growth of EBs nationwide, it is imperative teachers understand the connection between their communication acts, positions, and mathematics success and how their role in the classroom can be leveraged to create and manage storylines of mathematical competence for students that counter deficit views. Case studies—such as Ms. Bristow—can be used to illuminate how specific language practices and pedagogy can be employed by teachers to establish storylines of mathematical competence early in the year that position EBs for mathematical success.

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