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Reflecting on the Dialogue Regarding the Mathematics Education of English Learners

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Teachers' beliefs are intertwined with their instructional practices and influence the ways they act and interact with students in the classroom (Philipp, 2007; Thompson, 1992). Researchers have found that teachers may hold a number of unproductive beliefs about English Learners (ELs), such as ELs cannot meet learning goals and their families do not highly regard education (McLeman & Fernandes, 2012; Pettit, 2011). Teachers who hold these types of unproductive beliefs may perceive teaching mathematics with ELs as a problem to overcome, thus affecting student learning. Such views, however, may ultimately encourage a perspective that devalues or fails to recognize the knowledge and skills ELs possess (see, e.g., Civil, 2007; Moll, Amanti, Neff, & Gonzalez, 1992). To counter these types of beliefs, we argue that it is important to understand the context in which these beliefs are developed.

Unproductive beliefs about ELs reflect wider societal views. Educational research comparing ELs to other “higher performing” student populations, who are frequently monolingual and White, continues to pervade the literature (Gutiérrez, 2008). Nonetheless, a focus on the achievement gap between students without regard to the social and political structures that contribute to these differences in achievement (Gutiérrez, 2013) upholds a subconscious narrative that the standard to which all should be held is that of monolingual, White students and that other students (at the lower end of the gap, such as ELs) need to be “fixed” in order to “catch up” with their peers. Parks (2009) cautioned:

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The phrase achievement gap highlights some aspects of equality, but not others. Focusing on achievement highlights the performance of individual students, and, because of the way it has been used in the United States, particular kinds of students—typically those who are poor and have dark skin.... Closing the achievement gap implies that our work ought to be on students (or possibly schools and teachers) who do not measure up. It does not implicate definitions of mathematics, economic inequity, cultural or language hegemony, or other practices that many of us on the desired side of the “gap” benefit from daily. (p. 19)

This implicit, invisible bias perpetuates beliefs that ELs are less capable and may interfere with a teacher’s ability to effectively work with ELs in the classroom because it encourages a need for emphasizing basic mathematical facts or procedures rather than equitable mathematical conceptual understanding. As a result, academically successful students from a marginalized population may even be considered as non-representative of her or his group. For example, a student perceived as an “exceptional” EL may be granted “non-EL” status because her or his abilities do not align with the expected characteristics of ELs.

Along with achievement gap research, the dominant narrative regarding available resources for ELs suggests they require support rather than challenge. Currently, much of the dialogue surrounding the mathematics education of ELs focuses on linguistic support. This focus is visible throughout the myriad resources and publications widely available online, which answer the calls made by teachers for help teaching ELs. These resources number in the tens of thousands and can easily be found using a search string such as “supporting ELs” or “challenging ELs.” The number of resources uncovered by each search is indicative of society’s views of these students (Fairclough, Mulderrig, & Wodak, 2011). Assumedly, if the teacher seeks to challenge students, then she or he implicitly believes that students can meet this challenge. However, the common language of “*supporting* ELs” may have consequences for students; it may perpetuate a perspective of a population who needs to be fixed. Consider the following three pairs of Google searches¹ that solicit resources for how to support or challenge “English Learners,” “gifted students,” and “students” in general (see Figure 1).

The number of links related to supporting or challenging students in general shows approximately 2.8 results for the former for every 1 result of the latter. The search results for gifted students—approximately 0.4 results for support for every 1 result for challenge—reflect the identification of these students by ability and position as more academically autonomous. In contrast, the links for ELs exhibit a stark contrast between those of the other two groups. There were 11,000 returns related

¹ We recognize the limitations of Google searches and acknowledge that they are not an “exact science,” so to speak. They do, however, provide a sketch of how ELs are being discursively framed within the resources and articles available on the World Wide Web.

to supporting ELs in our search and no results for “how to challenge English learners.” To ensure that we were not missing a way to refer to ELs, we also searched with the terms English language learners, ELLs, and ELs in lieu of English learners. It was only in this last case (ELs) that we found exactly one result, in all other instances there were none. We do not argue that ELs do not need support; however, we recognize that a need for language support does not signal some sort of deficiency in mathematics, therefore there remains a need to challenge and extend students’ thinking. The extreme disparities in search results reveal aspects of the current narrative that underlie our approach to teaching ELs. The focus of online resources for teaching ELs overwhelmingly assumes they are more likely to need support rather than challenge. Because of the focus on support, far less attention is given to challenging ELs mathematically or extending their thinking. It is perhaps not surprising that much of teachers’ focus in working with ELs surrounds remediation.

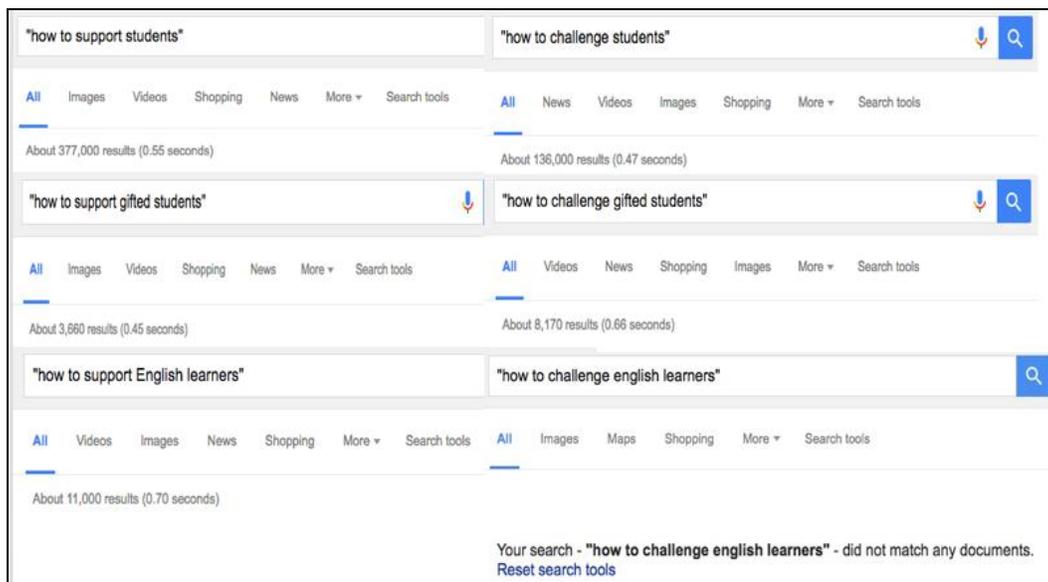


Figure 1. Google search of web resources containing “how to challenge” or “how to support” students, gifted students, and English learners (August 15, 2016).

In this public story, we discuss possible repercussions that extend from this narrative and the ways in which we, as mathematics teacher educators, are trying to be more critical of ourselves as we seek to change the discourse in our courses. We illustrate this effort through the presentation of a preservice elementary teacher’s (PST) work with a fifth grade EL. We share how our analysis of interactions be-

tween the PST and the student led us to deeply reconsider our practice as mathematics teacher educators, particularly regarding the mathematics education of ELs.

Sparking Reflection

Our story begins with our analysis of data from a study that examined an EL-focused mathematics field experience. The first author, Zandra de Araujo, was teaching an elementary mathematics methods course and had piloted the field experience as a means of providing PSTs with opportunities to work with ELs. In the field experience, four PSTs were paired one-on-one with an elementary EL. Prior studies (Fernandes, 2012; Kasmer, 2013) have found that experiences for PSTs that allow them to work with ELs can enable them to gain a stronger understanding of the connections among language and mathematics and may also challenge deficit views of ELs. Nevertheless, these studies have also cautioned that such experiences need to be carefully designed because they may also lead to the reinforcement of unproductive beliefs about ELs. de Araujo designed the field experience with this cautioning in mind. The field experience provided PSTs opportunities to enact cognitively demanding mathematics tasks (e.g., Stein, Grover, & Henningsen, 1996) with an EL. The PSTs planned for these sessions and met regularly with de Araujo to reflect and detail plans for subsequent sessions. The explicit focus on cognitively demanding task was important because prior work has shown that teachers tend to avoid enacting such tasks with ELs (e.g., de Araujo, 2012).

For each week of the field meetings, the PSTs worked with the ELs on mathematics tasks for about 45 minutes. Prior to each of the first three weekly meetings, the PSTs planned a lesson around a provided cognitively demanding task. In the final week, the PSTs selected or created their own tasks. In each of their weekly meetings, the PSTs would enact their plans, speaking with the research team before and afterwards to discuss their plans and reactions to the meeting.

When analyzing the data, we noted that most of the PSTs took steps to remove obstacles for their students. For example, one PST often color-coded and bolded relevant information to help her student identify and keep track of key information (for further discussion of PSTs' strategies see de Araujo, I, Smith, & Sawkow, 2015). One PST, Kimberly, however, consistently did the opposite by raising a number of linguistic obstacles for her student, Kyeong-Tae.² In one task, for instance, she replaced numerals with written out numbers (i.e., 24 was replaced with "twenty-four"). Initially, we were perplexed by this action and other adaptations, which often left us asking ourselves, why was she doing this?

² Kimberly and Kyeong-Tae are pseudonyms.

Kimberly regularly expressed her feelings of fear and anxiety that arose as she worked with Kyeong-Tae. Her openness and comfort in sharing such feelings pushed us to critically reflect on what we were doing in our methods courses that might contribute to such feelings. Moreover, Kimberly's experience forced us to reflect on our own teaching experiences, the feelings we ourselves had, ways we had worked to overcome such feelings, and repercussions of teachers' fear and anxiety on EL learning.

We begin by sharing an abbreviated version of Kimberly's experiences throughout her meetings with Kyeong-Tae. To create this abbreviated narrative, we drew on Kimberly's pre- and post-survey data, video recordings of her meetings with Kyeong-Tae, lesson plans, and written reflections. We also drew from video recorded interviews with Kimberly before and after each meeting and a final debrief. To analyze the data we first coded the lesson plans and interview transcripts using open coding to identify initial themes using analytic memos. Throughout the coding process we focused our attention on excerpts in which Kimberly described her thoughts about working with Kyeong-Tae and the specific strategies and accommodations she made for him. We used these excerpts to construct a brief portrait of Kimberly's experiences working with Kyeong-Tae throughout all 4 weeks.

We focus this retelling on the ways in which Kimberly tried to accommodate Kyeong-Tae and her feelings and beliefs regarding the experience of working with an EL for the first time. We think it important to highlight her beliefs and the ways in which these beliefs manifested in the encounters. Thus, we are grateful that Kimberly was open in sharing her fears with us and emphasize that she was doing what she thought best for Kyeong-Tae by drawing on the resources to which she had access. Through Kimberly's experiences we can learn how to improve our own practice as mathematics teacher educators. Throughout the following four sections, we also bring up questions that arose for us as we analyzed Kimberly's experiences. Thus, we use Kimberly's example to not only illustrate the consequences of the dominant deficit narrative of ELs on mathematics teaching and learning, but also to bring to light the ways in which these episodes led us to question our approach to preparing teachers to work with ELs.

The Initial Encounter

I'm, I've got nothing but worries. I know, that's not fair, but I'm concerned. I'm worried that he won't be able to understand me. That any and all inflection that I have in my voice or the way that I talk will be confusing, because I know that I mumble and I know that my tone isn't as clear as it could be, so that's a concern. I really, I have no idea what level Kyeong-Tae's going to be on his English because I don't know how we're going to be able to communicate. (Kimberly)

At the time of the study, Kimberly was a junior elementary education major enrolled in the second of two mathematics methods courses. Kimberly was a monolingual, White woman in her twenties. On her pre-survey, Kimberly noted that she had no prior teaching experiences with ELs and no explicit instruction in teaching ELs. She agreed to participate because she thought the experience would be beneficial as she entered student teaching the following year. Kimberly was paired with Kyeong-Tae, a fifth grade student from South Korea. At the time of the study, Kyeong-Tae had been in the United States for about six months.

Prior to her first meeting with Kyeong-Tae, Kimberly was candid in expressing her concerns, many of which, as she stated, related to potential communication barriers she anticipated. We see evidence in her statement of two assumptions related to ELs: (a) they are homogenous in their language proficiencies, and (b) they are most likely unable to communicate with teachers given their lack of language proficiency. We were not surprised by these beliefs, but questioned in what ways we were challenging PSTs to consider their own views of ELs.

Despite her concerns about being able to communicate, Kimberly had created a plan for the first meeting:

Okay, so I really want to see what he is capable of without a whole lot of support first, so I am going to see where he is at. So I am going to present the problem, I intend to read it to him very clearly and slowly as many repeats as he requires.... I am trying to get to know a little bit because I want him to be comfortable. I think this is incredibly uncomfortable process for kids sometimes.

Kimberly had thought about ways to support Kyeong-Tae's language by attending to her own language, as evidenced in her two quotes. She also brought along manipulatives to support him mathematically. Within the first few minutes of the meeting, however, Kimberly realized that Kyeong-Tae's mathematical knowledge far exceeded her expectations. Although she had anticipated about 30 minutes to implement the given task with Kyeong-Tae, he finished the task within 10 minutes. We talked with Kimberly immediately after this initial session:

When he put his strategies down, it was things I never would've thought of...like that last thing he did with the—I mean, I remember learning about it, but I also remember failing every test on it, so like that was impressive to me at least. Just how he would get there so quickly and in his head.... That was so fast, the way he did that in before I even started thinking about the first number in a line, he was done, so kind of concerned about being able to keep up with him in future sessions.... I mean I don't want to say that math is not my strong suit because I'm not terrible at it, but it's—I am no Kyeong-Tae.

We knew that the concerns Kimberly raised regarding her lack of confidence in mathematics are not uncommon among elementary PSTs. However, her fear raised

a number of questions for us as mathematics teacher educators: What could we have done to better prepare Kimberly to accept and effectively work through her fear? How could we challenge Kimberly's view of ELs as students who need mathematical support? How would Kimberly respond to a gifted, non-EL student?

After this initial meeting with Kyeong-Tae, Kimberly altered how she approached subsequent meetings. Her plans changed from a focus on supporting Kyeong-Tae's language and mathematics to challenging him. However, the ways in which she attempted to challenge him revealed much about the need to support mathematics teachers in this work.

The Second Encounter

So the main thing that I'm afraid of is that he is going to blow through everything again. And that we [teacher and researcher] are just going to be sitting here staring at him while he's, he's looking at me like I'm an idiot. So that was a big fear of mine. (Kimberly)

We found that the second week was characterized by Kimberly's sense of conflict over how to work with Kyeong-Tae. The quote above highlights the worry and apprehension she felt in anticipation of the second meeting. Instead of being afraid he would not understand her, this week she was afraid that she was not prepared mathematically for Kyeong-Tae.

For the second meeting, we had provided Kimberly with two tasks and she had selected an additional task of her own. Kimberly made two modifications to the tasks we gave her prior to enacting them with Kyeong-Tae. The first change she made was to remove a picture of mangoes from a task. Initially, we were puzzled by her decision to remove the picture. A common strategy to help ELs is to add in pictures, so why would she take the picture out? Kimberly explained her reasoning—

I took out the picture. I just got a bad vibe about it. If the picture is on there, he might try to count the picture...it seems like he's really advanced and I don't want to pander to him a whole lot.

The picture she removed was the only picture on the task and did not represent a correct solution to the problem. It is worth noting that Kyeong-Tae had not relied on pictures to solve the previous week's task. However, while assuming that Kyeong-Tae would be mathematically proficient on this week's task, Kimberly may have assumed that he would avoid engaging in the prompt if he had a choice. Thus, Kimberly thought that engaging with the task's English prompt would increase the task's level of difficulty for Kyeong-Tae. It seems that Kimberly thought

a linguistic challenge would even slow down his mathematical processes so that he had to think more deeply through the task.

As she continued to describe her accommodations for Kyeong-Tae, Kimberly again described a modification that ran counter to common supports for ELs: she replaced all numerals in one task with words. Like the removal of the picture, Kimberly did so to ensure that Kyeong-Tae read the problem for understanding. Both of these modifications concerned linguistic aspects of the tasks, but were implemented to challenge Kyeong-Tae mathematically. The goal of many instructional strategies for ELs is to reduce or eliminate potential obstacles (e.g., Chval & Chávez, 2012; Harper & de Jong, 2004), particularly in terms of language. However, we noted that Kimberly seemed to raise language barriers for Kyeong-Tae and this observation was confirmed as we examined the third task Kimberly used.

Kimberly selected the third task on her own. This task was comprised of a set of arithmetic problems about the Titanic (Figure 2). The task featured many words and a context—social studies—which Kyeong-Tae described as his most difficult subject. Kimberly explained that she had selected the task because she wanted more challenging tasks for Kyeong-Tae. Although the worksheet stated it was for sixth grade, the problems involved basic operations and were low in cognitive demand. It is evident that she either failed to consider the level of mathematics of the task or selected it primarily for the amount of written text.

Titanic: The Ship

The Ship: The Numbers

| | | | |
|-------------|------------------------|---------|---------------------------|
| \$7,500,000 | The Cost | 4 | The Number of Funnels |
| 264 meters | The Length | 3 | The Functional Funnels |
| 1912 | The Year of the Voyage | 2 | The Number of Anchors |
| 1985 | The Year it was found | 15 tons | The weight of the Anchors |
| 840 | The Number of Rooms | 24 | The Number of Boilers |
| 1 | The Number of Decks | 3 | The Build Time, in Years |
| 23 knots | The Top Speed | 3,000 | People who built the ship |

Use the information above to help answer the questions.

- How many years passed between the sinking of the ship and the year it was found? 73 years
- Each of the workers who built the ship was paid about \$4 per week. How much did The White Star Line, who built the ship, pay ALL the people who worked on it each week? 12000\$
- What year did they begin building the Titanic? 1909

Figure 2. Excerpt from the third week's task Kimberly selected for Kyeong-Tae.

In the post-interview, Kimberly acknowledged the problems did not challenge Kyeong-Tae mathematically, but she did believe they challenged him linguistically:

Interviewer: So, [the task] challenged him linguistically but not mathematically you said.

Kimberly: Not as much, so I might actually look for some word problems at a high school level, like a lower high school level, to see, in the same vein, of not being too complex but, I don't know, you know, I don't know because I don't want him to feel frustrated on two fronts is all.... Yeah, and I am not sure if that is right. I'm not sure if I should be feeling that way, because I feel like, he can probably handle it. I don't know, what do you think?

As evidenced in the excerpt above, Kimberly was grappling with how to provide appropriate mathematics tasks for Kyeong-Tae. Although she wanted to challenge Kyeong-Tae, Kimberly hesitated to challenge him simultaneously in both linguistic and mathematical aspects. With this in mind, she opted to challenge Kyeong-Tae linguistically, perhaps based on her expertise in English and low-self efficacy in mathematics. Said another way, we believe Kimberly felt competent in her ability to linguistically challenge Kyeong-Tae, but unprepared to do so mathematically. When considering this belief we reflected on how we approached ELs in our methods courses. Have we talked about how to extend ELs' mathematical thinking or have we only discussed how to accommodate their language? How can we change our discourse of ELs to ensure PSTs have strategies to meet the diverse needs of all students?

After the interview, it was clear Kimberly was wrestling with her conceptions of ELs in light of her experiences with Kyeong-Tae:

I almost don't want to lump Kyeong-Tae in with what I was thinking about for my own classroom. Because he is so exceptional I feel like, there is a certain extent to which Kyeong-Tae needs less support than your average EL. Maybe not in English, but certainly in math.... I don't know, maybe that's what the average EL situation looks like; maybe it's all about encouraging them to communicate when they're confused.

For the remainder of the field experience, Kimberly continued to try to reconcile her beliefs about "average" ELs with her experiences with Kyeong-Tae.

The Third Encounter

If you would have asked me that question [whether the task should be implemented differently for ELs than non-ELs] on the very first problem that we did with Kyeong-Tae, the very first time I met with him, I would have said, "Yes, the task needs to be [modified], they need to have manipulatives, they need to have this and that." Kyeong-Tae has really sort of been a different experience. I think that he is probably not typical. (Kimberly)

In the third week, we have evidence that Kimberly perceived her experiences with Kyeong-Tae in opposition with her general beliefs about ELs. This perception was evident when she referred to Kyeong-Tae as an EL, but continued to describe

him as “not typical” or “exceptional” given that he did not exhibit characteristics she had associated with ELs. By compartmentalizing Kyeong-Tae as an atypical EL, Kimberly was able to retain her beliefs of ELs more broadly.

One of the third week’s tasks focused on rounding and required Kyeong-Tae to determine if certain students’ claims of rounded values were true. The truth of these statements depended on the place value to which a student rounded. The task required Kyeong-Tae to explain his thinking and to critique others’ arguments. Thus, the task was potentially more linguistically and cognitively demanding than prior tasks. Kimberly anticipated some challenges with the transition to this type of task and stated in the pre-interview, “I think he’s just a little nervous about having to [explain his thinking] and think about it in English because he probably thinks in Korean, doesn’t he?” This revelation was profound for Kimberly who had not considered how an EL might reason with the mathematics in a different way or even a different language. This revelation led us again to consider in what ways are we discussing ELs in our courses? Much of our discussion with PSTs has focused on providing access to mathematical content by minimizing language obstacles. This focus on supporting ELs linguistically is a common theme present in a larger EL narrative in mathematics education. We began to further consider the ways that we differentiate among various levels of English proficiency in our courses. Were our general references to ELs contributing to the notion that they all had similar linguistic needs? If so, how can we talk generally about ELs without making broad generalizations? Furthermore, were we discussing how to leverage ELs’ understanding of mathematics in their first languages?

As Kimberly continued to reflect on her beliefs about ELs and her experience with Kyeong-Tae, she expressed similar doubts and fears as in the previous weeks:

I talked to the other [PSTs] who are doing these exercises and they talk about how their kiddos are struggling and I’m like, am I doing this wrong? Is he supposed to be struggling?

Kyeong-Tae’s success continued to surprise Kimberly and did little to combat the belief that he should struggle. Although she began to ask meaningful questions as she reflected on the experience, she remained hesitant to let go of previously held assumptions of ELs. This “holding on” caused us to reflect on the ways we can challenge such assumptions when discussing ELs in our courses.

The Final Encounter

I’m a little super nervous; I’m not going to lie, because I’m pretty sure that Kyeong-Tae is better at math than I am. . . . I’m sort of afraid that I’m going to mess him up by being wrong about something. (Kimberly)

Prior to her final encounter, Kimberly continued to express fear and apprehension regarding her work with Kyeong-Tae. The quote above suggests the root of these fears lies in Kimberly's perceptions of her mathematical abilities in relation to Kyeong-Tae's. As she grappled with these perceptions, she considered the implications for her teaching, namely that she might "mess him up."

Instead of giving Kimberly tasks as in the prior weeks, in this final week we asked her to select or create a task. She selected a task focused on the relationship among circumference, diameter, pi, and area of circles. The task utilized objects in the classroom, was conceptually based, and was unlike the other tasks she had enacted prior. In addition, Kimberly chose to provide instructions orally. She explained these instructional decisions in the pre-interview:

I wanted it to be engaging and fun for Kyeong-Tae since he's already so good at math and I just figured, the other thing I thought about was that because it would be verbally—I would be verbally giving him directions, that this might be more challenging for him to pick up on the cues, but it's probably a lot more similar to what he sees in school.

Her task selection was also motivated by a familiarity with it—a similar activity was done in her mathematics methods course—and an upcoming exam would cover related content.

As they met, Kimberly found that Kyeong-Tae had prior knowledge of the mathematical content of the task. He was familiar with the formulas for computing area and circumference of a circle. Kimberly had not expected this prior knowledge as she reported in the post-interview, "He came in knowing all the formulas, which I didn't expect." She also expressed surprise at Kyeong-Tae's mathematical thinking: "I never even thought about that with the $4r^2$ (Kyeong-Tae's method of deriving the area of a circle), but I can totally see what he was thinking there and I wonder where he got that." These statements illustrated how her conceptions of Kyeong-Tae, in conjunction with her lack of prior teaching experience and work with ELs in her teacher preparation program, influenced her ability to anticipate possible student solutions.

In her final interview, Kimberly reflected on this last encounter and the overall experience as it related to her future teaching:

I was a little spoiled in this with Kyeong-Tae, because he's so talkative and I think we did establish a rapport fairly quickly.... I don't want to say that I maybe didn't get as much out of this as I would have with a student that wasn't as advanced, because I think I got a lot out of working with Kyeong-Tae, but I think that if I continue working with ELL students at [school], I almost certainly will, I'm going to see more challenges and probably have to adapt in other ways.

Her quote evidences her conception of ELs as not as advanced mathematically as Kyeong-Tae. She described Kyeong-Tae as an exception to the norm and she did not expect future ELs to be like him. A later statement reiterates this conception:

I really expected him to not be on grade level, and he was beyond grade level, he was a gifted student...all of my preconceptions and all of my adaptations I had made were for taking it down and I would have never in a million years would have expected to have to take it up.

These two quotes provided us with some ideas for why Kimberly struggled to challenge Kyeong-Tae mathematically. She did not expect him to need more challenging problems. Instead, she thought that would have to lower the difficulty of tasks for him because he was an EL. This thinking made us wonder, “Did we not talk about ELs when discussing challenging students? Did we always associate ELs with low ability? In what ways did our methods courses frame ELs as mathematical thinkers?” Truly, if all of Kimberly’s preconceptions of ELs were deficit-focused, then her fears and apprehensions when working with a high-achieving EL are not surprising.

Kimberly’s beliefs about ELs impacted her ability to appropriately challenge Kyeong-Tae mathematically. This case was particularly eye opening because although we realize the need to address ELs as individuals and know it is important to challenge them, we realized we might not be providing our students with the right opportunities to grow their understanding in these areas.

Perspectives on the Experience

How did we interpret Kimberly’s experiences with Kyeong-Tae? The evidence suggests that she found Kyeong-Tae to be a non-representative EL. Although Kyeong-Tae was audibly an EL, he did not perform mathematically in accordance with Kimberly’s preconceptions. Kimberly expected Kyeong-Tae to struggle and even asked after the third meeting whether he was supposed to be struggling. Instead, Kyeong-Tae succeeded in every task he was given and surpassed Kimberly’s own perceived abilities in mathematics. These realities fueled Kimberly’s anxiety and, over the course of the 4 weeks, she continued to have “nothing but worries” concerning how best to support Kyeong-Tae.

In large part, this anxiety may have stemmed from Kimberly feeling unquipped in her role because she thought her mathematical knowledge was less developed than Kyeong-Tae’s; as she noted, “I am no Kyeong-Tae.” Moreover, Kimberly’s fourth week comment that expressed concern for “messing him up by being wrong about something” is evidence of this anxiety. She seemed to have an ideal notion of a teacher who would be able to avoid such a situation.

When her sessions with Kyeong-Tae did not go as she had imagined, Kimberly responded in two ways. First, she sought to position Kyeong-Tae as a struggling learner by raising linguistic barriers. She introduced linguistic challenges to tasks intended to slow Kyeong-Tae down and to challenge him. Doing so may have helped her reconcile her field experience with her preconceptions of ELs as struggling students. When reflecting on her introduction of linguistic challenges, we found that her actions were sensible within the greater narrative surrounding ELs and lack of available resources. Namely, if lowering linguistic obstacles is how we support ELs, then to challenge ELs one might simply raise those obstacles. However, these modifications did little to further his mathematical growth and served to position both her as an expert or authority and Kyeong-Tae as a student in need during their interactions.

Second, Kimberly figuratively relieved Kyeong-Tae of his EL status by positioning him as “not typical.” She failed to recognize that teaching Kyeong-Tae was an authentic experience and may be characteristic of future experiences teaching ELs mathematics. Thus, her positioning of Kyeong-Tae as an EL-anomaly was detrimental to her success as an equitable teacher. Specifically, this view led her to ignore Kyeong-Tae’s mathematical development in favor of his language. This view runs counter to researchers’ suggestions that it is more important for teachers to attend to *what* students do and say in mathematics, rather than *how* they do or say it (Moschkovich, 1999). It also came as a surprise to Kimberly that Kyeong-Tae thought in Korean, suggesting that she had not considered how his own experiences and language might provide a supportive linguistic context (Barwell, 2005) with which Kyeong-Tae could use to solve the tasks. That is, an EL’s native language should be seen as a tool, rather than an obstacle.

Although we see an increased focus on ELs in teacher preparation programs (including our own), we question whether this preparation contributes to existing deficit narratives of ELs. In our own experience, we see evidence through our own feelings of disbelief. Although we were surprised by Kimberly’s responses and reactions to Kyeong-Tae, we see them as evidence of our failure to counter or challenge deficit narratives. Such behaviors should be expected if we perpetuate current deficit narratives. Moreover, the implications of deficit views or the impulse to position ELs in deficient ways are great and, in Kimberly’s case, manifested in her selection and modification of tasks and a failure to hold Kyeong-Tae accountable for demanding mathematical practices. We anticipate similar patterns of behavior can be found in other teachers who hold comparable views of ELs.

While examining Kimberly’s case, we found ourselves asking, “What might we have done differently in our preparation courses to more effectively counteract deficit beliefs and actions?” First, we believed that we needed to talk about ELs every time we discussed working with students. Marginalizing this group to a special chapter or specific lesson may only serve to promote a sense of peculiarity that

may lead to deficit views. When talking about gifted students, for instance, we should talk about students like Kyeong-Tae. Neglecting to include this diverse population in each of our discussions surrounding mathematics education prevents our PSTs from normalizing their presence in the classroom. We expect that familiarity may lessen the surprise and discomfort surrounding working with ELs.

Secondly, ELs, like all students, are mathematical thinkers. We should consider this identity first and foremost in the mathematics classroom. Perhaps in our methods courses, we need to change our approach in how we talk about ELs. We can talk first about the goal of developing students' mathematical knowledge. Then and only then, we can consider how to enact math tasks that draw on their cultural and linguistic resources. In other words, we might try to encourage PSTs to use the student's language to increase access to mathematics. Ultimately, if we are to change the discourse and feelings surrounding ELs, we must change how we talk with our PSTs about their status as mathematical thinkers.

Our Conclusions

What we learned from Kimberly is that mathematics educators must consciously and continuously challenge PSTs' unproductive beliefs about ELs. If PSTs enter mathematics methods courses with the idea that ELs—or any student population—are homogenous, they may be limited in how appropriately they can respond to students. Therefore, mathematics educators must continue to consider how PSTs learn to engage ELs in mathematical discourse and practices through supports designed to improve access, rather than to lower difficulty. Graphs, pictures, and diagrams, for example, can be powerful tools in communicating mathematically and can be used by students of any language (Chval & Chávez, 2012).

In reflecting on Kimberly's experiences and our own practice, we have found that the common narrative of *supporting ELs* has unintended consequences. The resources available to students and teachers online overwhelmingly fail to position ELs as in need of challenging tasks and activities that extend their thinking. We need to make clear to PSTs that ELs do not inherently struggle with the ideas we teach in mathematics. We must not forget that ELs are also *mathematical* learners and thinkers. Perhaps this is further evidence for rethinking the label EL as others have proposed (e.g., Kibler & Valdés, 2016). One step we will commit to as we continue to grapple with these issues is to be conscious of our own language as mathematics educators and researchers as we challenge the common narrative and shift our perspectives from supporting ELs to engaging them in appropriate mathematics.

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