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THEORIZING A TRANSLANGUAGING STANCE: ENVISIONING AN EMPOWERING PARTICIPATORY MATHEMATICS EDUCATION *JUNTOS CON* EMERGENT BILINGUAL STUDENTS

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We propose a translanguaging stance in the bilingual mathematics classroom defined by four elements: (1) Con respeto for other people's ideas, leading to positive intellectual relations, (2) Con cariño, a commitment to the learning of others, (3) Como familia, working for the good of the classroom collective and for the benefit of individuals, and (4) Con acompañamiento, where teachers actively do math with their students. We propose a focus for the bilingual mathematics classroom and emergent bilingual students that emphasizes the importance of rehumanizing mathematics classrooms for all students and valuing their full linguistic repertoires.

Keywords: Culturally Relevant Pedagogy, Teacher Affect, Beliefs, Identity

Mathematics education research advocates for practices that celebrate all students' mathematical reasoning and ways of knowing (Turner & Drake, 2016.) There remains a need to study what this means for emergent bilingual (EB) students, especially given the deficit-oriented historical context of U.S. education policy around language with an overemphasis on English mastery (Gandara, et al., 2010). We see an urgent connection between envisioning a different mathematics education for EB students and PMENA's enduring conference challenge of both preparing teachers of EB students and continuing to support *all* students through equitable teaching. Translanguaging, an evolving understanding of language practices (García & Wei, 2014), provides a different lens through which to view multilingual mathematics classrooms.

We briefly describe a translanguaging stance and make relevant connections to mathematics education research moving the field forward as we propose this new lens. We base our arguments on mathematical lessons observed in a 2nd grade dual language class and make an argument for how all EB students could participate in mathematics teaching and learning through ways that are rehumanizing to all people in the classroom space and to mathematics itself.

Theoretical framework

García and Kleifgen (2010) encourage moving past traditional language separation practices (i.e, English day and Spanish day) and instead consider the "dynamic bilingual practices" which emergent bilinguals enact and are context and person specific. García, Ibarra Johnson & Seltzer (2017) define a translanguaging classroom as a "space built collaboratively" with their own language practices, and teaching and learning in "deeply creative and critical ways" (pg.2). Due to a lack of translanguaging studies in elementary mathematics classrooms, we further argue that it is necessary for mathematics educators to cultivate a *translanguaging stance* and build classrooms in which teachers and students *juntos* (together).

We conceptualize a translanguaging stance in the mathematics classroom as the deliberate choice by teachers to use children's thinking while engaging in mathematics instruction that develops knowledge, dispositions and practices that not only support the development of children's mathematical thinking, but also build on students' cultural, linguistic and community-based knowledge (Turner et al., 2012). We posit that students can not only expand their sense of what they can do mathematically, but also develop a sense of what mathematics can be, and

develop mathematical identities characterized by power and possibility (Adams, 2018). Building on an active anti-racist stance that first acknowledges EB student's racialized schooling and mathematics learning experiences in US schools (Martin, 2009), we theorize classroom practices in a translanguageing mathematics classroom. García, Ibarra Johnson & Seltzer (2017) identified four translanguageing classroom elements that support and value EB students: *con respeto*, *con cariño*, *como familia*, and *con acompañamiento*. We briefly present each of these elements and supporting mathematics education research.

Four Elements of a Mathematics Translanguageing Classroom

Con respeto (with respect). Two second grade EB students, Rubén and Hernán, shared their strategies, one in English and one in Spanish, for a subtraction problem, while the teacher, Ms. Amaris used mathematical notation to represent their mathematical thinking. Ms. Amaris elicited mathematical ideas in both languages and did not provide translation, but let the notation and sharing of the strategies remain the focus of the conversation. When teaching with respect, we observe how our EB students expand the entire class' ways of knowing both by honoring the languages in which students express themselves and the ideas and reasoning that they share. At the same time, by bringing students' knowledge and ideas to bear in discussions of mathematics, we are also showing other ways to *mathematize*, much like translanguageing expands notions of what it means to *language* (García, Ibarra Johnson & Seltzer 2017).

We also observed how the teacher understood children's multidigit subtraction strategies and selected powerful mathematical strategies to be shared with the entire class (Carpenter, et al., 2000). *Con respeto* is enacted when teachers make instructional decisions based on how their students understand mathematics (Franke, et al., 2001). Knowledge of children's mathematical thinking is an important component of how teachers can view their EB students' mathematical thinking in an empowering way, by positioning the students as mathematical thinkers and creating a shift in who "does" mathematics (Turner, Domínguez, Maldonado & Empson, 2013).

Con cariño (with fondness). *Cariño* denotes the love that can bring together all members of a classroom community, along with their languages (García, Ibarra Johnson, & Seltzer, 2017). This includes the ways of doing math that students bring with them and how their mathematical reasoning intertwines with their languages and their experiences to weave ideas.

Ms. Amaris posed a Join Change Unknown problem, part of a unit in which the class explored how children were affected by the Flint water crisis. Her students proposed raising money for Flint children, providing a meaningful context for problems (Dominguez, 2011). The class shared strategies and Hernán shared his incorrect answer in Spanish. Ms. Amaris then explored a common computational error to promote Hernán's powerful subtraction base ten strategy. This was a common practice in Ms. Amaris' classroom: Hernán used his linguistic repertoire by sharing in Spanish, which provided a space where language was a resource for mathematical understanding. In this classroom, encouraging students to express their thinking in the language in which their minds happen to express the idea at that moment, shifted the focus from *form* (English vs. Spanish) to *content* (the mathematical idea being learned).

This corroborates with Moschkovich's (2015) definition of academic literacy in mathematics for English language learners which posits that academic mathematical literacy is not just about the cognitive aspects of mathematics, but also situated in experiences such as discussion and being able to express one's ideas in a known language. It is thus the participation in mathematical practices, in this case discussion of one's strategies, that leads to mathematical proficiency for EB students. In this interaction, Ms. Amaris makes a purposeful decision, *con*

cariño, because of her knowledge of the student's academic literacy in mathematics, to use Spanish as the means through which to encourage a powerful strategy into the classroom space.

Como familia (like a family). *Familia* as a translanguaging stance in the mathematics classroom takes the form of a group that collectively works to support and promote both the whole group and each individual member. García (2017) describes how, when a classroom is like a *familia*, classroom discussions address content and language along with “inner truths”, with the goal of fostering meaningful learning and strong connections. The previous observed lesson showcased how Ms. Amaris' classroom behaves as a *familia* and shows mathematics being learned through a student-centered discussion and connected to the original ideas that students produced. Ms. Amaris often put the responsibility of making sense on students, and through this sense making the original idea shared shifted.

This element connects to vast research on discussion in mathematics education. Highlighted in Moschkovich's (2015) work as an important component of academic literacy in mathematics, other research has iterated how important discussion is for developing conceptual and procedural mathematics understanding (Stein, Engle, Smith & Hughes, 2008). Past studies of how teachers should include EB students in mathematical discussions (Maldonado, Turner, Dominguez & Empson, 2009) have not been viewed through a translanguaging lens, but the element of *como familia* aptly fits the type of classroom that this research advocates for.

Con acompañamiento (truly together). This element goes beyond being together and empathizing for one another and involves actively doing mathematics with one another--in the classroom this means that instruction is planned so that teacher and students engage in learning, *linguaging* (García, 2017) and *math-ing* together. Ms. Amaris' classroom shares a deep and profound understanding of *why* mathematics matters and are engaging in mathematics together. In learning mathematics *con acompañamiento* we see how the focus on the ways students learn to treat each other, and the respect they learn for people from circumstances different from their own, produce equitable relations that are encouraged and developed in the classroom. This supports the importance of using TEACH MATH modules, which encourage teachers to view the students and community as sources of mathematics learning (Aguirre, et al., 2012).

Conclusions

We have focused on the importance of a translanguaging stance for teaching mathematics to EB students, but feel that these elements serve the possibility of rehumanizing mathematics classrooms for *all* students who are seen from a deficit perspective. Moving forward, we also need to reconsider how we prepare future bilingual education teachers for this kind of mathematics teaching which shifts the focus from language use to mathematical reasoning. Given the tensions that bilingual teachers face in classrooms, we need to view this education as not only liberatory for the students, but for the teachers as well.

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