

Conversations around Mathematics Education with Latino Parents in Two Borderland Communities: The Influence of Two Contrasting Language Policies

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Abstract

This article explores the impact of different language policies on working-class, Latino parents' engagement in their children's mathematics education. Our study compares two settings (Arizona and New Mexico) with contrasting language policies (New Mexico, where bilingual education is endorsed by the State Constitution, and Arizona, where it is very restricted due to Proposition 203, an anti-bilingual initiative that passed in November 2000). The qualitative analysis of data is based on in-depth interviews, focus group discussions, and classroom observations with parents. The results support the crucial role of context within mathematics education, which includes the historicity of the communities and the role of the different educational policies.

Introduction

The work presented in this article is part of the research agenda for CEMELA¹ (Center for the Mathematics Education of Latinos), which focuses on research in mathematics education on student learning, teacher and teacher education, and parents and community. The research we discuss in this article is a collaboration between two

CEMELA partner sites—The University of Arizona and The University of New Mexico.

We argue for the need to examine mathematics education opportunities (or lack of) for Latinos beyond what takes place at school or in the classroom context. Families' voices have often been excluded from the conversations that concern their children's mathematics education. How do the different language policies in the two settings (Arizona, where bilingual education is severely constrained and New Mexico, where its constitution endorses it) affect Spanish-dominant parents' engagement in their children's mathematics education? In this article we look into factors that support or impede Mexican-American or Mexican-immigrant families' school engagement in mathematics. In so doing, we engage in a conversation that opens a space to counter negative views and myths in the collaboration with Latino families (Valencia & Black, 2002).

Theoretical Framework

Our work is grounded on the assumption that students' communities and families are essential to reverse the challenging trends of low achievement and persistence rates in mathematics among Latino students. The concept of "funds of knowledge" is key to our research. This theoretical concept highlights the interaction between the community background and the knowledge in the learning process (González, Moll, & Amanti, 2005; Moll, Amanti, Neff, & González, 1992; Moll & Ruiz, 2002). This approach assumes that community knowledge can provide strategic resources for classroom practices. Civil and colleagues focus on the concept of Funds of Knowledge in the context of mathematics education and Latino families (Civil & Andrade, 2002; Civil & Bernier, 2006; Civil, Planas, & Quintos, 2005). We also draw on the concepts of social and cultural capital, in

particular as they have been applied to research with working-class families (Horvat, Weininger, & Lareau, 2003; Lareau & Horvat, 1999). Our research with parents is influenced by Flecha's (2000) work with adult learners following a dialogical learning approach that encourages an egalitarian perspective in order to value all contributions (not only "scholarly" ones) as part of the knowledge.

Lave and Wenger (1991) provide a framework to look at knowledge (and learning) as situated processes that are affected by cultural, social and linguistic dimensions. The linguistic dimension is of particular interest in the research we present here, as we focus on the influence of language policies on issues related to parental engagement in their children's mathematics education. There is a large body of research on the role of language in the learning and teaching of mathematics, and of particular interest to us in this study is the research on language and mathematics with English Language Learners (Celedón-Pattichis, [in press](#); Khisty, 2006; Khisty & Chval, 2002; Moschkovich, 1999, 2002, 2007). Many mathematics classrooms emphasize discourse and communication. Students are expected to talk and write about mathematics. How does this language-rich environment for mathematics instruction impact parental engagement, especially when parents are not proficient in English?

Context

Arizona Latino population is 28.5% and New Mexico is 43.4% ([U.S. Census, 2005](#)). In this article we focus on Spanish-dominant, immigrant Latino parents, who are therefore often navigating between two educational systems, one in the U.S. and one in México. In prior research we have documented immigrant parents' perceptions on the

differences between the two educational systems (Bratton, Quintos, & Civil, 2004; Civil, Bratton, & Quintos, 2005; Civil, Planas, & Quintos, 2005, Civil & Quintos, 2006). Here, our focus emerges out of the two very different language policies in education that are in place in these two states. In November 2000, voters in Arizona passed an anti-bilingual initiative (Proposition 203), which followed the passage of Proposition 227 of California that passed in 1998. Both laws severely restrict bilingual education programs, replacing them with “Structured English Immersion” classes for a period “not normally intended to exceed one year” (ARS, 15-752). The law allows teachers to use a minimal amount of the child's native language for clarification, but “all children in Arizona public schools shall be taught English by being taught in English and all children shall be placed in English language classrooms” (ARS, 15-752).

This proposition in Arizona is thus affecting thousands of children whose first language is Spanish, giving their parents very limited choices for access to bilingual programs (children have to prove to be proficient in English, be 10 years or older, or be children with special needs). On the other hand, New Mexico endorses bilingual education, values parents’ choices of bilingual programs for their children and provides funding for parent advisory committees.

We argue that it is important to understand how these different language policies may affect immigrant parents’ engagement with their children’s education and in our case their children’s mathematics education. Verónica, a mother in a previous research project (Bratton, Quintos, & Civil, 2004), stopped going to her child’s classroom because she did not think she could help him there, as she did not understand English well enough.

Verónica: A mí lo que me gustaba era que si mientras estuvieran en un programa bilingüe, yo podía estar involucrada ... Como cuando estaba en el kinder, pues muy fácil, recortar, pasarles trabajitos a los niños, recogérselos, hasta me traía trabajo para la casa para llevárselo a la maestra otro día. En primero igual, me iba con él y como ella hablaba español, pues me daba para calificarle y cosas así, pero ya me veía ahí mi niño, ya oía, yo ya miraba ahí, al estar ahí sentada, yo estoy mirando, me estoy dando cuenta. Y ya cuando David, ya puro segundo fue, a puro inglés y con el maestro que hablaba puro inglés, pues ya no, ya no fui.

(I liked it while they were in a bilingual program, I could be involved... When he was in kindergarten it was easy to cut out things, pass out the projects to the kids, gather them up, I even brought work home to take for the teacher the next day. In first grade it was the same thing, I went with him and because the teacher spoke Spanish, she gave me things to grade and other jobs like that. My son saw me there, I could listen to him, I watched him. By being there watching, I realize many things. And then when David went to second grade into English-only and with a teacher that only spoke English, then I didn't go, I didn't go.)

We wonder about the equity implications and the compatibility of restrictive language policies with the current push for parental involvement.

Method

Our main research goal is to gain a better understanding of Latino parents' perceptions about their children's mathematics education. In particular, in the study reported here we wanted to focus on the impact of different language policies (in Arizona and in New Mexico) on a group of immigrant parents' perceptions and the effect of these

policies on their engagement (as reported by the parents). To this end we conducted interviews (audio taped) with 15 mothers from two different schools in Tucson, AZ and with 10 parents (9 mothers and 1 father) in two different schools in New Mexico (Albuquerque and Bernalillo). All parents were Spanish dominant. In addition to the interviews we did three classroom observations, one in each elementary school in Tucson and one at the elementary school in Albuquerque.

We have developed a systematic approach to these classroom observations in prior research (Civil & Quintos, 2002; Civil & Quintos, 2006). In these visits one to three researchers and a small group of parents (from 3 to 6, usually) observe a mathematics lesson and then meet to debrief the experience. We have found this to be a powerful way to engage with the parents in a dialogue based on a common experience, that of having observed a class together. This debriefing is audio taped and often videotaped too.

Both the interviews and the classrooms observations debriefing were transcribed and then analyzed under grounded theory (Glaser & Strauss, 1967), coding then for emerging themes. Through these in-depth interviews and classroom observations, we documented Latino parents' views and beliefs on their engagement (Calabrese, Drake, Perez, St. Louis, & George, 2004) and their children's mathematics education. Our methodological approach is grounded on phenomenology (Van Manen, 1990), which relies heavily on participants' contributions to the experience and then strives to triangulate the data through multiple experiences and sources of data. The lived experience of each parent is considered significant. This is also consistent with a critical-communicative approach (Flecha & Gómez, 2004), which incorporates parents' voices into the scientific discourse from an egalitarian point of view.

Findings

In the next two sections we present our findings in relation to parental engagement in their children’s mathematics education. We begin with an overview of the nature of this engagement to underscore, as other researchers have done, the importance that working-class Latino parents give to their children’s schooling. We then turn to the main focus of this article, which is the impact of language policies on this engagement.

Nature of parents’ engagement in their children’s mathematics education and beliefs regarding this engagement

Our findings underscore parents’ forms of engagement as congruent with the broader concept of the Spanish term “educación,” which goes beyond “education” to encompass also “behavior” (Goldenberg & Gallimore, 1995) and the impact on their children’s achievement. Parents’ engagement in mathematics education requires the schools to create new spaces in which they are offered more opportunities to participate in their children’s schooling, and to revise the power imbalances that parents face, which prevent them from collaborating as they want--on an equal basis, as participants in our studies have noted.

The parents in our study consistently mentioned helping their children in school related tasks, reading to them in either Spanish or English, helping with homework, and with any other assignments that teachers would give to their children.

Briana [NM]: Yo trato de ayudarle, cual es la respuesta de la, le hago preguntas al mismo tiempo para que ella vaya relacionando el problema y sólo cuando de plano ya ella no entiende la forma pues yo le pongo fácil el problema para que ella ponga la respuesta.

Un ejemplo nada más yo se lo hago y luego le ayudo a comprobarlo y ya que ella siga haciendo el resto.

(I try to help her, which is the answer to that, I ask questions at the same time so that she can relate to the problem and only when she doesn't understand the form I make the problem easier so she can answer it. I make one example, nothing more and later I help her revise it and then she can do the rest).

If they feel they cannot help them themselves, they look for help through their networks of other family members, school staff, neighbours:

Interviewer: Y si hay problemas en los que tú no las puedes ayudar, qué hacen ellas?

Laura: Pues ahí buscan ayuda con mi esposo, por ejemplo, y si no entiende él tampoco, pues entonces andamos buscando, y le pido ayuda por ejemplo aquí a Alicia, o a algún maestro

(Interviewer: What about if there are problems in which you can not help them, what do they do?

Laura: So they ask for my husband's help, for example, and if he doesn't understand either, well then we keep looking, and I ask for help, for example here to Alicia, or to a teacher).

In most cases mothers mention the importance of helping their children not only with school-based tasks, but also at informal settings and everyday situations such as going shopping, while watching a base ball game, at home, and so on:

Miriam [NM]: Cuando vamos de compras, este, vamos escogiendo las cosas y le digo a la niña, 'Dame tres jugos de naranja y dame tres de un otro.' Y ya me los da y luego le digo 'cuántos jugos llevamos?' Y ya los cuenta 'son seis.' Y así los limones. 'Dame

seis limones, y dame seis naranjas.’ ‘Y cuánto llevamos?’ Y ella los cuenta y son doce.

Así es como vamos dándole ideas de las matemáticas.

(When we go shopping, we are choosing things and I say to the girl, ‘Give me three orange juices and give me three of another kind.’ And she gives me them to me and later I say ‘how many juices do we have?’ And she counts them, ‘there are six.’ and the same with the lemons. ‘Give me six lemons and six oranges. How many do we have?’ And she counts them and there are 12. This is how we give her ideas in mathematics).

Part of this engagement is characterized by the importance parents give to the affective support they show towards their children, as they are learning mathematics:

Angela [NM]: Yo pienso que ya lo sabían, lo importante para ellos es sentir la presencia de los padres o alguien que les estaba acompañando. No tanto lo que aprendieron, sino que alguien, que mi mama, o mi prima, o mi abuelita... que me está viendo.

(I think they knew it, it is important for them to feel the presence of the parents or someone who was accompanying them. It is not just what they learned, but that someone, my mom, or my cousin, or my grandmother...she is with me.)

Briana [NM]: Pues es muy importante porque eso la motiva a ella. Hasta el hecho de que les digan ‘eh, bravo lo hiciste bien, perfecto.’ Son detallitos sencillos y yo pienso que eso si es importante. Porque ellos se motivan más para buscar la respuesta, para investigar, para tener algo que responder a su maestra.

(Well, it is very important because that motivates her. Even the fact that you tell them ‘great, you did it well, perfect.’ They are simple details and I think it is important. They get more motivated to look for the answer, to research, to have something to answer to their teacher)

Parents' thinking about the impacts of language practices on their children's learning

Combs, Evans, Fletcher, Parra and Jiménez (2005) conducted a study on the effects of Proposition 203. The implementation of this initiative brought consequences not only to the school community (school administrators, teachers, and students), it also affected the engagement of parents by restricting bilingual education. With the passage of this proposition Latino parents (mostly) in Arizona are now limited to the kind of school-related activities in which they participate with their children. In the same study parents expressed some examples of how this legislation is damaging their children and their concerns for future schooling. Not only bilingual children and teachers, parents also find themselves caught in the middle of a debate that is taking away the instruction in their native languages (Stritikus & Garcia, 2005). Cummins (2000) argues that bilingual education is not and never has been a process that is neutral. He also mentions that the education of minority students is situated in larger immigration issues, distribution of wealth and power, and the empowerment of students.

English-only creates barriers for parents. It is clear that English-only instruction raises up barriers for parents to cross. Parents are not only challenged to understand the teaching methods, but also to make sense of the curriculum in a language other than their own. Parents in Arizona (where instruction is in English only) mentioned that the English-only instruction made it hard for them to be able to help their children with homework:

Lucrecia [AZ]: Al principio se nos hacía, nada más como un comentario, se nos hacía difícil a nosotros, que el niño hiciera la tarea porque no sabíamos inglés y no podíamos traducirle los problemas.

(At first it was, just as a comment, it was difficult for us, that the boy did the homework because we didn't know English and were not able to translate the problem for him)

Jacinta [AZ]: Pues como te digo... yo, lo de otra clase que esté en inglés, yo no sé...

Christopher, tú tienes que poner atención a lo que te dice la maestra, porque yo no te voy a ayudar con una tarea que yo no sé. Necesitaría ir contigo también al salón, para que me.. la maestra también me explicara a mí para ayudarte a hacer la tarea.

(Like I say... I, whatever from other subject that is in English, I don't know...

Christopher, you have to pay attention to what the teacher is telling you, because I am not going to help you with a homework that I don't know. I would need to go with you to your classroom, so she would, the teacher would explain to me too to help you do your homework).

We found out that independently of policies in education (English-only or bilingual education), parents respond with resourcefulness when helping their children with school homework or activities that would be beneficial in their children's development. These parents would often talk to their children's teachers to find out what to do, request materials or find other people (relatives, neighbours) who can help when they did not understand what is asked in English. For example, Noelia, a mother who speaks very little English talks about how she uses her family network as well as the local community center ("the club") as a resource:

Noelia [AZ]: Yo tengo sobrinitos, son primos, pues si no entienden algo [sus hijas] le hablan por teléfono y le hablan a él. Y también aquí están en un club, que se llama boys and girls, ahí se llevan las tareas y ahí las ayudan a hacer las tareas.

(I have nephews, they are cousins, and so if they don't understand something [her daughters] call him on the phone. And also, they are in a club, boys and girls club, they take their homework there and they help them do it.)

Esperanza, a mother with whom we have worked for several years, is very eloquent on her views of how language should not be used as an excuse:

Esperanza [AZ]: El idioma no tiene que ver nada, porque si te interesa a ti la educación de tu hijo, aunque no sepas hablar el... en, en inglés, debe de haber un persona a la que te acerques en la escuela y te ayude.

(The language has nothing to do with it, because if you are interested in the education of your child, even if you don't know to speak the... in, in English, there should be a person you can approach at the school who can help you.)

English-Only can also be a barrier for the children. Most parents in Arizona made comments about how hard it was for their children to understand in class, when they first arrived. Some parents even referred to emotional trauma and time wasted. Children would constantly ask them to go back to Mexico or in the case of high school students, they would drop out of school because they did not understand what was being taught in school (Olsen, 2000).

Jacinta [AZ]: No, primero estaban todos en... en Inglés. Y ya yo empecé a menearme y, dije, no, pues, pobrecitos, porque estaban bien traumatados. Ya no querían ir a la escuela, se querían regresar para México, y era de todos los días, que lloraban... desesperados. Y los dos yo digo, pero el otro no decía nada. Hasta ahora, dice la maestra que después de dos años, dice, estoy muy contenta con Ramón porque ya se ríe. ¿Después de dos años se ríe? Le dije a la miss. Yo no le conocía su risa. Y ahora está más contento en la escuela... Pero tuvieron que pasar dos años. Se me hace que es tiempo que se perdió.

(No, first they were all in English. And then I started being proactive and, I said, no, poor children, because they were traumatized. They didn't want to go to school anymore, they wanted to go back to Mexico, and it was everyday, that they cried, ... desperate. And it was both of them, but the other didn't say anything. Until now, the teacher says that after two years, she says, I am very happy because Raul is laughing. After two years he is laughing? I replied to the Ms. I didn't know his laughter. And now he is much happier at school. But it was until 2 years had passed. I think that it is time that was wasted).

In addition to limited comprehension and time wasted some parents were aware that communication with their children is reduced if they are not able to participate in school activities or if they do not speak the school's language of instruction. We also wonder about the potential loss in linguistic communication and its implications for the relationship parents-children. Valenzuela (1999) writes about subtractive schooling as encompassing “subtractive assimilationist policies and practices that are designed to divest Mexican students of their culture and language” (p. 20). As Worthy (2006) writes, “as linguistic connections with their families and roots fade, these children also face a loss of cultural knowledge, family values, personal nurturing, and academic support” (p. 140). And as Olsen (2000) writes,

Immigrants are surprised and often discouraged by the contradictory pressures to become English speaking and the many roadblocks and barriers they discover to developing that proficiency. They and their families are saddened by the discovery, which comes too late, that becoming English fluent usually is accompanied by a loss of home language use, fluency and development. The longer immigrant students are in the United States, the greater is their awareness

of being caught in a power struggle over the use of English and other languages.

(p. 197)

When parents in New Mexico were asked how they would feel if their children were to be in an English-only classroom, they expressed concern:

Ana [NM]: Y yo pienso que para mi hija sería muy muy muy difícil porque su idioma es español. Ella no entendería, imagino yo que ni 10 por ciento de las matemáticas.

(I think that for my daughter it would be very, very, very difficult because her language is Spanish. She wouldn't understand, I imagine that not even 10% of the math).

Bilingual Education. Parents in both settings feel that bilingual education programs bring educational opportunities for their children, that it opens many doors for their children to succeed in life. Even though many parents in Arizona did not experience bilingual education with their children, they share the same opinion of those who did.

Olivia [NM]: Y ahora yo veo a mi niño y está en el mismo nivel tanto en español como en inglés. Que los dos idiomas, los habla bien. Y que los sistemas de las escuelas están super avanzados a comparación a cuando yo llegué. Mi niño me sorprende porque digo, habla tanto en inglés como en español, tanto en matemáticas, y en la escuela. Tanto el entiende el problema en inglés como el entiende el problema en español.” (Olivia, NM)

(I now I see that my son [Kindergarten] is at the same level as much in Spanish as in English. That the two languages, he speaks both well, and that the system of schools is more advanced in comparison to when I came [high school]. My son surprises me because he speaks as much in English as in Spanish, as much in mathematics, and in the school. He understands as much of the problem in English as he understands the problem in Spanish).

Contrary to English-only, with bilingual education programs there is a continuous connection with family and culture; parents feel more encouraged helping their children if they understand what is being asked in the instructions for the homework. The fact that

parents prefer or feel more comfortable with bilingual education programs is not because they do not want to learn English. Many of them said that it was difficult for them to learn English because of the diverse responsibilities around the house and their work schedules. As Worthy (2006) describes, Latino parents in her study wanted to learn English but found many obstacles along the way. Some of these obstacles, she points out, have to do with the current structure of English instruction for adults. She wonders, “is the current low priority placed on adult English learning, as opposed to the high priority for earlier immigrants, a (unintentional, unconscious) way to maintain the status quo in regard to the occupations and education of immigrants?” (p. 152).

Discussion

Previous research suggests that there is a strong relation between parents’ involvement in education and child’s achievement at school (Elboj, Puigdemívol, Soler, & Valls, 2002). Civil and her colleagues have analyzed for several years how parents try to help their child by using their own scholar background as well as informal resources grounded in their community cultural background (Civil & Andrade, 2002, 2003; Civil, Bernier, 2006; Civil, Planas, & Quintos, 2005;). This is an important fact, since our findings both in Arizona and New Mexico shows that parents often have difficulties helping their child because of the language. From a linguistic immersion point of view, first students have to learn the official language of teaching and learning, and then they are able to learn mathematics (or any other school subject). But from this approach, language becomes a real barrier that makes more difficult the communication between child and parents. Cummins (2000) provides a plethora of data from different research studies around the world that deny the assumption of linguistic immersionists. Students

who have the opportunity to learn in bilingual programs have more success than students who do not have the same opportunity. Our findings indicate that parents from New Mexico were comfortable with their children's learning of mathematics and the fact that they were learning in both Spanish and English. On the other hand, parents in Arizona shared their frustration in trying to help their children by using Spanish (which is not the official language of teaching and learning). But not only parents become frustrated because of this linguistic policy: students too.

In this research our focus is on parents' perceptions about the teaching and learning of mathematics. As our findings show, parents' perceptions becomes "cultural tools" (in terms of socio-cultural theory) since parents' use them as a cultural referents that mediate their response to child necessities in learning mathematics. When parents try to help their child, they often draw on their prior knowledge and experiences in mathematics (O'Toole & Abreu, 2005). Funds of knowledge become a tool that parents use to help their child, as other research studies have documented (Civil & Andrade, 2002; 2003; Moll, 1992; Moll, Amanti, Neff, González, 1992). This is an important fact, because it highlights that education is not (only) an individual process. Researchers and educators who declare that learning is an individual process say that first students (ELLs, ESLs) have to learn English, and then they are ready to learn other school subjects (such as mathematics, reading or writing). But this is not true, because learning is a holistic process that involves not only individuals, but also their communities (Elboj, et.al.,2002; Flecha, 2000; Lave & Wenger, 1991; Moschkovich, **in press**). Cummins (2000) examines carefully statements against bilingualism (from cognitive, social, sometimes cultural and

always a political points of view), and he concludes that bilingualism is more productive than the use of just one language of instruction.

Drawing on our prior work (Civil & Andrade, 2003; Civil, Bratton & Quintos, 2005; Civil, Planas, & Quintos, 2005), we argue that paying attention to students' communities and families is essential to address the education of Latino students. Our findings show that parents look at their community in order to help their children with mathematics. Some of them try to make connections between mathematics and everyday situations. Others look at teachers as resources, and yet other look for resources in the community (e.g., community centers). This is especially the case in Arizona, where parents are often not familiar enough with the language of instruction. Further research should look at issues related to parents' access to networks of support or other resources in the community.

Final Thoughts

Latinos are now the largest minority group in the United States. Through their educational history this group has faced (and continues to face) discrimination, particularly Mexican and Mexican-American students and their families. Language plays a role in this discrimination. As several authors have noted, in spite of other elements such as non-certified teachers who teach English Language Learners (ELLs), poor schools without enough resources to address the needs of ELLs, and low-expectations curricula, language is a key significant issue (Gutierrez, 2002; Moschkovich, in press; Ortiz-Franco & Flores, 2001; Secada, Fennema, & Adajian, 1995; Tate, 1997).

In this article we provide further evidence for the role of language in the mathematics education of Latino students. Language (and bilingualism) is really a crucial

fact that we have to take into account if we want to fight for a more inclusive education.

Change is something that does not happen overnight, but we think that it is our work and responsibility to look for ways in which Latino parents feel included as active members with the ability to help their children in the academic journey. As Civil (2002) points out in reflecting on her work with parents,

I suggest that through an authentic two-way dialogue in which these different forms of discourses and knowledge (community knowledge, school knowledge) and their associated values are brought into the open for scrutiny, we may in fact have a route towards the transformation of the educational experience for all, but in particular of the groups that have consistently been left behind in the academic journey. (p. 146)

Note

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