

**Exploring the Everyday Math Practices in Latino Families:  
Summary of Data**

*Anna Ríos*

The following is a summary of the data gathered from qualitative interviews with four Latino (Mexican-descent) families residing in the Watsonville area. The interviews aimed to center the math-rich resources present in Latino family households and specifically probe at the manner in which families draw upon math (either explicitly or implicitly) in their everyday lives so as to understand and illuminate the various sources of *community cultural wealth* and *funds of knowledge* thriving in Latino families and in the Latino/a community.

Running counter to deficit narratives that construct Latino families as “at risk,” “ignorant,” or “problems,” the family narratives included here reference the multiple funds of mathematical knowledge garnered from their various *life experiences* (González & Moll, 2002). As d’Ambrosio (1985) notes, mathematics not only has a particular cultural history, but “from different cultural histories have come what can only be described as different mathematics” (cited in Bishop, 1988, p. 180). Thus, “just as each cultural group generates its own language, religious belief, etc. so it seems that each cultural group is capable of generating its own mathematics” (Bishop, 1988, p. 180). However, to this insight I would add further that these cultural histories and the “different mathematics” that emerge from them have more to do with power asymmetries and survival than with the fictive inherent character of a particular “culture” or cultural group (in this case Latino families of Mexican-descent). As Baca Zinn (1998) helps to

illuminate, “Mexican family lifestyles often reflect adaptive responses to social and economic conditions. What were once labeled culturally deficient family patterns may now be viewed as family strategies that serve as a solution to constraints imposed by economic and social structures in the wider society” (p. 83). Therefore, the twin frameworks of ethnomathematics (Bishop, 1988; Civil, 2002; Civil & Andrade, 2002) and Community Cultural Wealth (Yosso, 2005) ” shifts our attention to such themes as “family metamorphoses, resilience, flexibility, and cohesion in the face of changing social environments and economic circumstances” (Berardo, 1991, p. 6; cited in Baca Zinn 1998, p. 83) so as to view the *everyday math practices* and the different ways that families problem solve and use math as vibrant expressions of “capital” or cultural *assets* Latina/o students and their families bring with them from their homes and communities and that are related to social and cultural life. As the interviews revealed, Latino families employed math as a tool in a variety of contexts to solve an assortment of problems. These daily cultural practices, as Saxe (n.d.) notes are centered around “goals;” it is in the process of achieving these goals that “children [and their families] generate new knowledge linked to social and cultural life” (p. 288).

#### *Math in the Fields: “En el Campo”*

Despite differences in migration histories and generational differences between the four families, all them shared the experience of doing agricultural work and thus were able to speak, either explicitly or implicitly, of the multiple ways in which they drew upon their base of mathematical knowledge to complete their work in the fields. Work in the fields, it became evident, required mathematical savvy to deal with the incertitudes nature often laid out for some of the families. One family, for example, spoke of the need for building

a small enclosure to keep the “boregas” (sheep) from wandering off and to prevent an unfortunate meeting with hungry predators such as wolves. Señor Cortez\* provided a detailed account of the process involved in constructing a small “corral” (fence).

Describing the fence at first as a “cuadrado” (a square), with further probing, Mr. Cortez moved on to relate how he went about building the fence.

“O sea lo que hicimos que...esas boregas no las regalo mi papa... desde chiquitas y no teniamos donde meterlas y las metiamos en una caja de carton...chiquitas...y fueron creciendo porque no se nos murieron. Y ya les hicimos un corralito chiquito con tablas...Lo que hicimos fue de...paramos cuatro palos...cuatro por cuatro en cada esquina. Fueron cuatro y... ya na mas le tapamos con tablas y le dejemos una puertita. Y eso fue todo lo del coral. Y ya fueron produciendo mas boregas...hasta que... pues ahorrita todavia tiene su papa de ella tiene todavia muchas boregas.”

*[“Well, it’s like this. What we did is...those sheep were a gift from my father...since they were babies and we didn’t have a place to put them and so we put them in a cardboard box...babies...and so they started to grow because they didn’t die on us. And so we made them a small corral with some boards. What we did was stand four sticks...four by four in each corner. There were four and then later we just covered them with boards and left them a little door. And that was the corral. They then started to reproduce until...well...right now her father still has a lot of sheep.]*

The reality that la familia Cortez\* relied on their livestock for their sustenance made the effective construction of such fence a *mathematical* imperative. The family’s ability to maintain the health and livelihood of what initially began as two sheep allowed them to eventually have a group of sheep, on which they relied for wool, milk, and other products. In Mr. Cortez’s words,

“...y ya de...nada mas teniamos dos boregitas. Ya de esas boregitas producieron mas. [*“...and then...we only had two sheep. From those two sheep there ended up being more.”*]

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\* All names are pseudonyms.

The Cortez family also spoke about their work in terms of traditions that are not easily forgotten. “Es una tradición que no se olvida” remarked Mrs. Cortez, referring to the process through which she and her family sowed seeds back in Mexico. “We used our hands to calculate the distance between each seed,” Mrs. Cortez went on to explain, extending her own hand in front of me to demonstrate how she estimated how far apart to plant each seed.

- Señora Cortez: “El trabajo del campo son muchas cosas...antes era con yunta...con los caballos...con sus arados hacian el surco. Y atras iba uno con un moralito con maíz y ir tirando la siembra por toda la tierra.”
- Anna: “¿Tenían que calcular como cada cuanto ponían las semillas?”
- Señor Cortez: “Si como 20...30 centímetros”
- Sra. Cortez: “...uh hum...como cada 30 centímetros” (looking at her hand)
- Anna: “Estoy mirando que estan mirando la mano...¿Entonces como una mano?”
- Sr. Cortez: “No...como un pie digamos...asi ibamos calculando...”

Once in California, the Mr. and Mrs. Cortez continued their hard work in the fields in order to provide for their family on both sides of the border. Mr. Cortez worked spraying the strawberry fields while Mrs. Cortez picked strawberries. During one interview, she explained the strawberry picking process (“el proceso de ir piscando”) to me.

- Señora C: “Uno agarra un carrito chico...como una caretilla digamos...poner una caja encima y irlo empujando. Al mismo tiempo de ir empujando, ir cortando la fresa de la mata y acumularla en las cajas.”
- AR: “¿Y como acomodaba usted la fruta?”
- Señora C: “Pues depende al tipo de caja que uno este trabajando. Hay cajas que piden especiales y esa si va acomodada desde abajo. Hay unas cajas que can de punta...que la fresa va de punta para abajo...asi paradita. Y la de encima si va media acostadita para que agarre el empaque...para que se vea bien pareja.”
- AR: “¿Entonces como las vas empaquando...tienes que contar a ver cuantas pones?”
- Señora C: “Pues a veces si hay que contar. A veces hay que contar...y pues a veces no. A veces las que quepan.”
- AR: “¿Y mas o menos sabes cuantas vas a poner en una fila o...?”
- Señora C: “Depende si el basquete es chico pueden caber...depende del tamaño

de la fresa. Si la fresa es grande, a veces caben cuatro o tres en un basquete de media libra...pueden caber tres fresas abajo y otras tres encima, depende del tamaño. Cuando la fresa esta mas o menos mediana podemos decir que caben como doce fresitas....seis abajo y seis arriba.”

For the Cortez family, working in the fields and drawing upon mathematical skills and knowledge to successfully achieve their goals was a more recent labor experience.

Others, however, spoke of agricultural work they took part in as children. One mother, Mrs. Chavez, related, with affection, her experience helping her parents pick strawberries when she was six years old.

“I used to love picking strawberries. But I didn’t make the boxes fast enough because I would put one in my mouth and one in the box. It was a lot of fun. I helped to fill about twenty boxes. (Responding to my question of how she went about filling the boxes.) Yeah the boxes were about that big (holding up her hands up to show the size of the box) and they had little baskets...you know I used to remember they had about six on each side. So, you know, you just throw some strawberries in there and try fix them nice. And when the box was full you take it to the side.”

#### Planning for Special Events: “La Quinceañera”

Families also relied on their fund of mathematical knowledge to plan for seminal social-cultural events such as first communions, birthdays and “quinceañeras,” a coming-of -age celebration for young women celebrated among many Latino/Mexican-descent families.

Although Blanca was only 13 years old, planning for her 15<sup>th</sup> birthday was already taking place. As her mother Mrs. Chavez related, the “quinceañera” is an important cultural practice that requires much delegation and planning. A family affair, the social responsibilities extend beyond the “family nucleus” and rely on an extended social network of family, friends, *padrinos* and *madrinas* (godparents) to make it a reality. The preparations for the quinceañera, as Mrs. Chavez related, begins with the selection of willing and financially-able family members that can help fund the event.

“This past week, my brother and his son were here, and we were gathering up some names...so I was trying to get a pen and paper and we were writing down family members, you know, who’ll want to help us out. Just family members, you know, no outsiders, you know. Yeah, and I got like eight names. Uncles and her god-father who baptized her. And we were calculating that date. My nephew was telling me, ‘oh about a thousand for this, a thousand for that, more or less’ and we were going low, you know, for the limousine, a thousand, and he would always say, ‘a thousand, a thousand’ for each. It was getting expensive. So she was already asleep when we were doing this. So the next morning I told her, you know, “M’hija, we’re going to try and work it out, you know, with family members, you know.”

The quinceañera is an event that can cost up to \$10,000 dollars and thus requires the support of uncles and other family members. At the outset, Mrs. Chavez emphasized the importance of beginning this negotiation process with the family. Before meeting with the family, Mrs. Chavez needs to begin with approximations and estimates of all of the foreseen party expenses, such as the music, food, dresses, mementos, and other party preparations for making this “special event” a memorable one. “That’s my dream...to have a quinceañera” remarked Mrs.Chavez. She herself had not had a quinceañera party. Paying for the “salon,” the space where the celebration is to be held is an honor reserved for “the favorite uncle”. “It’s a very special day and you have to calculate everything” Mrs. Chavez notes. Relations of trust and accountability are also important. “And you need to get persons that are going to be responsible, you know?” she adds.

“If I talk to the people for this December, my in-laws, I’m going to invite them down, you know. Okay, if you are going to be responsible, if you like, for this, for the music, or for the cake, or whatever. *But they need to give me their word*, you know? ‘Cause imagine if some back out at the last minute, what do I do? So I tell them, ‘you’re going to be looking at a thousand dollars, or two-thousand. So you need to share with your mate, or if you have a girlfriend or a wife, you guys as a couple do it together.’ And they have to start saving up, because two years will come before you know it, it will be here.”

Having learned from her previous experience in organizing Blanca's first communion celebration, where large amounts of food were wasted, Mrs. Chavez shares her plans to things differently. Planning the party is as much about cost efficiency as it is as much about managing frivolous waste. There is therefore always a moral dimension to the planning of special events such as these that moves beyond simply wanting *to get more for your money*.

“This time I'm going to do it like the Americans do...reserve, you know, call to reserve, you know? Make sure I put it on their invitation. In a way, the way I thought, the way they did it I thought was kinda rude. You have to call and say, 'I'm going or not.' But it is a very smart idea. Now that I went through all that. Now I know why they do that. Before when I got an invitation I would think, “God, that's so rude!” But now I know why, because if you invite like 100 persons to come to the party, you're thinking everyone is going to show up. You call them, ‘Oh yeah, we'll be there. What time?’. But they don't show up and then you lose a lot.

#### “Tandas”

“Tandas” work like mutual savings accounts. For example, a group of people can contribute money to a larger pot on a rotating basis. If it is done on a weekly basis, each week one person or family receives *la tanda*. As Yosso (2006) illuminates, these tandas serve an important social and economic function for many Latino families, especially for those who are in the process of negotiating their legal status and for whom presenting the required documentation to open up a bank account is not a viable option. “It's like a savings” explained Mrs. Chavez. She described the “tanda” in these terms:

“I have a few friends, you know? Responsible, you know? And we each give 200 dollars a month, okay? And we each get one month. The person that went in, they're going to collect 800 dollars each. For me it's good because I use to pay for my bills. For example my mother last moth, if she put in her two [hundred], she received a thousand [dollars]. If you put you're two, when you receive you get a thousand.”

Once again, the success and effectiveness of the “tanda” relies on relations of trust between the members of the *tanda*.

“You need to get *very responsible* people. Because the person that’s doing it, like me, is responsible. Everybody has to collect. I have to make sure. This last time this person was all confused. He got two numbers so he was going to collect twice. So he had to give me double. He had to give me 400 dollars, but he didn’t understand. We had to explain to him. He didn’t understand. There was a misunderstanding you know, so he wanted out. So that was a big responsibility for me. Because this had to continue, you know, until the end. I had to get a loan on my credit card. I had to make up for his mistake.”

Mrs. Chavez has been doing the *tanda* for over six years years. “Everybody trusts me” she adds. “You need to do it with very close friends” Mrs. Chavez advises. “And you need to know if you can back them up, because you know, if that person dies, you need to know for sure who is going to back that person up for the money, because you never know.” The “tanda” is not a practice Mrs. Chavez grew up with or learned from her parents. “I learned it from friends.”

### **Significance and Potential Implications for Educational Policy and Practice:**

The family narratives encapsulated in this brief summary aim to contribute to larger conversations that echo the *familia* as a resource rather than liability — and as a potential site of agency, transformation, and empowerment. We need to be collectively committed to doing research that continues to combat and be critical of these negative images of Latino families, as these images continue to dangerously linger in our social imaginations (albeit in more nuanced forms) in a way that continues to influence policy and contribute to the subordination of Latino children. These negative images can be dispelled if we continue to direct our focus to “the accumulated knowledge base that Latino families

(and other immigrant families) have derived from their historical, cultural, and social traditions” (Hidalgo, 1999, p. 110).

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