

Cafecito con Matemática: A bilingual mathematics outreach event that centers family, culture, and community

Jocelyn Rios
Colorado State University

Elizabeth G. Arnold
Colorado State University

Kimberly Espinoza
Colorado State University

Keywords: Outreach, Bilingual mathematics education, Hispanic/Latino communities, Design principles

With the growing emphasis on supporting and celebrating diversity in mathematics, it is important for mathematics departments to build responsible partnerships with local communities and schools. In the context of the Southwest, extant research has documented how outreach initiatives can create bridges between families, school, and universities, helping to facilitate the mathematical participation of students and parents from Hispanic/Latino communities (Civil et al., 2005) and mathematics pre-service teacher professional development (Stoehr et al., 2022). Moreover, research demonstrates the importance of using culturally responsive practices and creating bilingual spaces that affirm Spanish as a valid language for teaching and learning mathematics (Civil, 2007; Civil & Andrade, 2002; Turner et al., 2013).

In this poster, we present *Cafecito con Matemática* (CM), a bilingual mathematics outreach event run by Colorado State University. This event is hosted at a local bilingual elementary school that serves predominantly Hispanic/Latino communities. Occurring monthly during the evenings, CM first provides students and their families with dinner and then engages everyone in fun, culturally relevant mathematics games and activities which are facilitated by school teachers and university members (including mathematics graduate students and pre-service teachers who gain valuable experience interacting with students and their families). All materials for CM are provided in English and Spanish to create accessibility and promote bilingualism. Ultimately, CM creates a space which validates and leverages families' language and mathematical knowledge, while also providing them with resources to help their children develop their learning of, excitement for, and curiosity within mathematics.

Additionally, CM creates a space that celebrates the home languages of our Spanish-speaking mathematics pre-service teachers and graduate students. By intentionally recruiting Spanish speakers to be involved in CM, we are positioning their home language as a valuable resource that strengthens their ability to teach and mentor diverse communities. Through this event these pre-service teachers and graduate students represent the department in a teaching role, serve as role models to the community, and have a space to interact with school students in their home language, and celebrate their culture alongside community members.

In this poster, we further describe the guiding features and implementation of CM in an effort to support others interested in developing similar outreach events within their local communities. We blend a mathematical approach that focuses on hands-on learning experiences with a culturally responsive approach that features mathematics games and activities that draw inspiration from Hispano cultures, communities, and traditions (e.g., Lotería and traditional games from Latin America). We conclude with initial findings from an examination of the benefits of implementing such an event. We focus on multiple perspectives, providing excerpts from students and their families, from the teachers and administration within the schools, and from the mathematics pre-service teachers and graduate students who serve as teaching assistants for CM. We have found that this event is meaningful in many ways for those involved and serves as a way to celebrate culture and diversity in mathematics education.

References

- Civil, M. (2007). Building on community knowledge: An avenue to equity in mathematics education. *Improving access to mathematics: Diversity and equity in the classroom*, 105–117.
- Civil, M. & Andrade, R. (2002). Transitions between home and school mathematics: Rays of hope amidst the passing clouds. In G. de Abreu, A. J. Bishop, & N. C. Presmeg (Eds.), *Transitions between contexts of mathematics practices* (pp.149–169). Kluwer.
- Civil, M., Bratton, J., & Quintos, B. (2005). Parents and mathematics education in a Latino community: Redefining parental participation. *Multicultural Education*, 13(2), 60–64.
- Stoehr, K., Salazar, F., & Civil, M. (2022). The power of mothers and teachers engaging in a mathematics bilingual collaboration. *Teachers College Record*, 124(5), 30–48.
- Turner, E., Dominguez, H., Maldonado, L., & Empson, S. (2013). English learners' participation in mathematical discussion: Shifting positionings and dynamic identities. *Journal for Research in Mathematics Education*, 44(1), 199–234.