

# Promoting Parental and Family Involvement in Mathematical Content and Language Learning in Two-Way Dual Language Programs

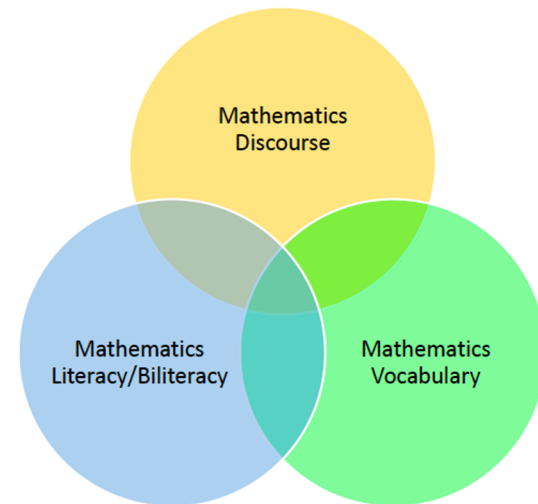
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# The Research

- Larger five-year research project
  - Examines bilingual pedagogy on Math, language and literacy integration in California and Texas
  - Four Groups: Pre-Service Teachers/Courses, First Year Teachers, Mentor Teachers, Parents
- **Parent Group:** promoting family engagement in mathematics in the dual language setting.



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# Objectives

To present a variety of activities that can be done with parents to activate the mathematical knowledge and the integration of bilingualism that is used at home and connect them with school teaching while supporting emergent bilingual students.

# What Literature Says

- Research on early childhood education highlights the need for connecting home practices and children's mathematical content for learning achievement in bilingual contexts (DeFlorio & Beliakoff, 2015; Kleemans, Peters, Segers & Verhoeven, 2012).
- Current research indicates that although parents are generally willing to support their children's school success, they often struggle with finding ways to help their children with mathematical learning, as compared to literacy (Cannon & Ginsburg, 2008; Segers, Kleemans, & Varhoeven, 2015).
- These challenges faced by parents, and the scarcity of teaching tools available to assist parents in this area drive our research.

# The Workshops

- 4 Workshops during Spring semester in Texas and California
  - Children were part of Spanish-English two-way dual language program
  - Different academic and professional backgrounds
  - Workshops in Spanish and English
- Data Collected:
  - Audio/Video
  - Pre- and post- surveys
  - Workshop Evaluations
  - One-on-One Interviews
- Workshop activities focus:
  - Discourse, vocabulary, and biliteracy.

# The Parents

<b>Participant</b>	<b>Family Background</b>	<b>Gender</b>	<b>Language</b>	<b>Education</b>
PP1.101	Guatemala	F	Spanish	B.A. / U.S.
PP1.102	México	F	Spanish	A.A./ U.S.
PP1.103	México	F	Spanish	Tech/MX
PP1.104	México	F	Spanish	B.A. / U.S.
PP1.105	US/Cauc	F	English	PhD/ U.S.
PP1.106	US/Hispanic	F	Spanish	B.A. / U.S.
PP1.107	US/Hispanic	F	English	M.A. / U.S.
PP1.108	México	F	Spanish	-
PP1.109	US/Hispanic	F	English	H.S. /U.S.
PP1.110	Colombia	F	Spanish	-

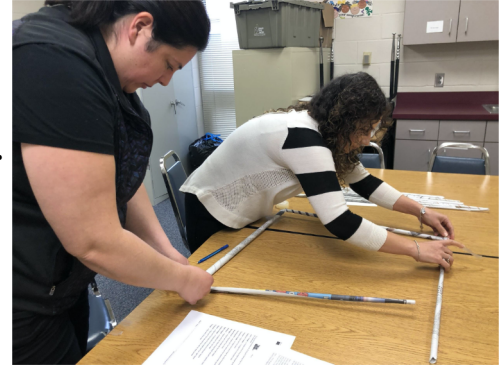
# Task: Geometry

**Objective:** In groups, make an object made up of a minimum of four different geometric shapes that is sturdy enough to stand up.

**Activity: Part 1:** Brainstorm the type of object. Each group will sketch the object to be made with the shapes being labeled. Spanish and English vocabulary is made available.

**Part 2:** Object is created using newspaper dowels.

**Part 3:** After the geometric shape is created, each group will share their object with the group by identifying the shapes in the object and what their object is using the vocabulary available.



# Task: How Close to 100?

**Objective:** To combine recognizing and practicing multiplication tables with discourse practices. The goal is to fill the array using multiplication products.

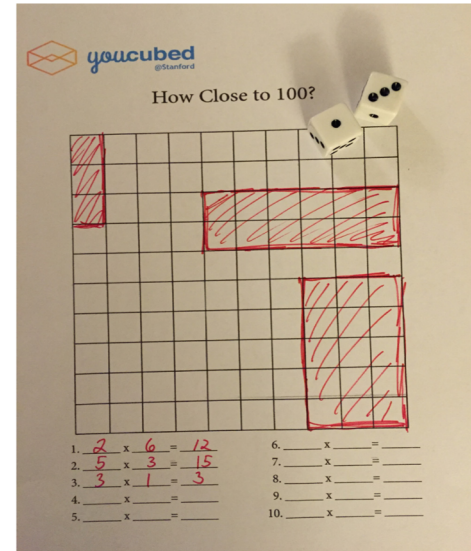
**Activity:** Partner up. The first partner rolls the dice and multiplies the result. She/He then colors the product array anywhere on the grid and writes the equation it describes. The second player then rolls the dice, draws the number grid, and records the equation.

Students are encouraged to describe the multiplication, using key vocabulary (Producto, multiplicar, por, por cuánto, cuántas veces, veces )

**Aim:** The game ends when both players fill out the entire grid.

Modification: Each teammate can have their own grid.

Play moves forward to see who can get the closest or quickest to 100.



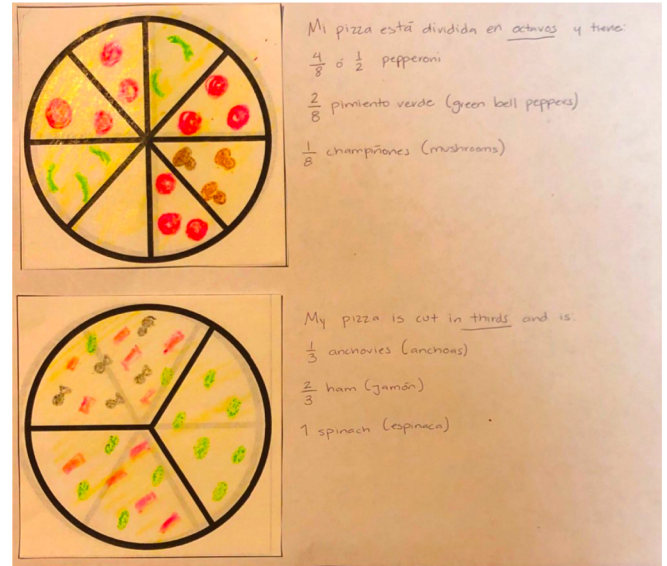


# Fraction Pizza

**Objective:** This activity aims at reinforcing vocabulary related to fractions and the understanding that decomposing into more equal shares creates smaller shares.

## Activity:

1. Partition circles into equal shares and draw different ingredients.
1. Describe in writing the shares using the words medio, tercio, cuartos, quintos, sextos, etc (*halves, thirds, fourths/quarters, fifths, sixths, etc*).
1. Orally present your pizza, try using the phrases mitad de, un cuarto de, un tercio de... (*half of, fourth of, and quarter*) of to describe the ingredients.



# Task: Popcorn For Class Movie



**Objective:** Parents and teachers work together in groups to complete a task. Everyone's strategies/thinking matters. Teachers are not in charge of deciding how to do the task and/or if the strategies/thinking being offered is right or wrong.

**Activity: Part 1:** Parents and teachers introduce themselves and form groups. "Movie Task" is given to the group and come up with a team name.

**Part 2:** While working on the task, groups must identify and make a list of the mathematics vocabulary they use in order to solve the task. Groups have 30 minutes to work

**Part 3:** Each group shares out their answer and explain how they thought about they solved the task. They share the mathematics vocabulary they identified while working on the task.



Activity: How Close To a  
100?

# Lessons Learned and Concluding Thoughts

- These workshops afforded the exchange of ideas which ultimately made a meaningful experience for everybody involved.
- These workshops created a space where parents' knowledge and voices were heard and valued.
- These workshops reshaped parents' perceptions about the distance between school and home knowledges, allowing a collaborative learning environment at home
- These workshops empowered parents to use math discourse more confidently and to see their home activities as purposeful and productive.
- Parents reconceptualized their ideas about math learning as a process that involves biliteracy, vocabulary, and discourse elements.

# Parent Workshop Materials



# Thank you! ¡Gracias!

For more information, visit our MALLI website: <https://malli.sites.ucsc.edu>

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