

# Culturally Situated Early STEM Grocery Store Signage

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In Collaboration with the Santa Ana Healthy Retail Team (SAHRT)

## Introduction

### Culturally Situated Learning

- Culturally Situated Learning frameworks hold culture as central to individuals' everyday learning experiences that aid in making sense of different social contexts<sup>2,4</sup>
- Pairing out-of-school learning activities with in-school learning objectives can merge school concepts with cultural funds of knowledge that are historically and culturally based<sup>4</sup>

### Out-of-School Learning

- Interventions that occur in everyday spaces where routines already exist can be low cost, supportive of children's development and may yield greater impacts for populations within lower socioeconomic areas<sup>3</sup>

### Current Study

- This study highlights the use of participatory design, which is not typically used in the field of developmental psychology, to value and incorporate community input to support the learning and development of young children

## Methods

### Participatory Design (PD)

- Co-Design sessions with SAHRT members ( $n = 22$ ) to promote local engagement
- Participants shared narratives about supermarket experiences and redesigned signage from past studies to reflect their values and culture

### Data Analysis

- Understanding community values reflected in narratives
- Preliminary analysis and codebook development
- Deductive thematic coding using Dedoose software
- Generating signage ideas based on themes from coding

## Research Questions

1. How do community members envision grocery stores as a space for learning?
2. What learning do community members want to encourage in everyday spaces?
3. How are people's shopping experiences tied specifically to culture in Santa Ana?

## Results

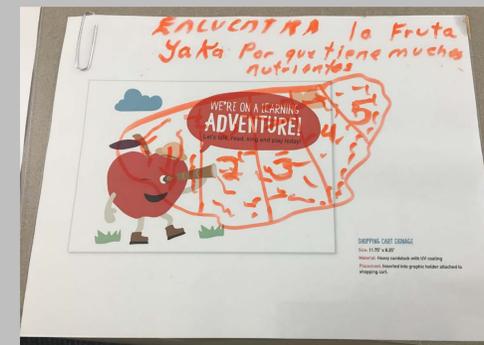
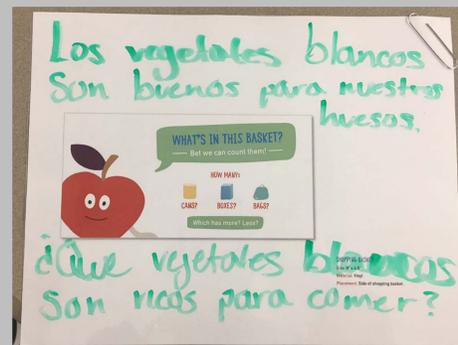
**RQ1: Community members envision grocery stores as a space to learn about different foods, bolster language development, gain math skills, and learn how to plan.**

"Funny thing, my girl would say, 'Mom, what's this?' In the store, in the eggplant bag, oh, and she's like, 'You're silly, mom, how come an egg is gonna be in a plant?' [laughs] I said, 'No, that's the name of it.' 'Eggplant?'... 'How could an egg-is gonna be in a plant?'"  
"So maybe you can like draw an egg and then put a plant there [rie], so they're together and then like egg plus plant, you got an eggplant."

*A parent recounted their daughter's exploration of different fruits and understanding of new terms introduced as compound words.*

*This excerpt demonstrates grocery stores as a place for learning languages and about different types of food.*

**RQ2: Community members redesigned signage to include cultural elements such as language to describe produce and share nutritional information.**



**RQ3: Participants recalled differences in the measuring units used when shopping for items sold by weight. Family members who immigrated to the United States were accustomed to the metric system and recalled differences in portion sizes when converting between the metric and imperial systems.**

*Participant 1:* "What you say, that the adults, I and the children do not, because they already know here about pounds. But we as adults, in the butcher shop, on the butcher shop side. A kilo and a pound, 'I want a kilo, I want a pound.' 'How much is a pound going to be?' [laughs] 'Oh, give me a pound,' we're thinking it's a kilo, we get a pound, well nothing, " 'Oh, my God,' and one doesn't know, well I didn't know, right?"  
*Participant 2:* "Or also to make tamales."

*Participant 1:* "Aha."  
*Participant 2:* "A piece of pork"

*Participant 1:* In the butcher shop, or on sides where they put it like that. The pound and what end up being a pound. For example us, the kilo, right? And the kids see a pound here in the United States the kilo, in other countries if they see something they say, "The kilo is this here."

## References

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## Discussion

### Centering Community Voices in Developmental Psychology

- Participatory Design (PD) method is useful for researchers in the field of developmental psychology because it allows for researchers to better integrate communal funds of knowledge during the development process of learning artifacts
- Researchers who use PD can avoid prescribing a set of standards and goals which may not be culturally appropriate in different settings

### Limitations

- UCI personnel and SAHRT leaders outnumbered parents and caregivers during the co-design sessions; this was addressed by creating signage solely based on community members' narratives and redesigned signage
- Signage ideas and creative briefs were not brought back to SAHRT or community members to receive feedback; however, the research team engaged in a multi-step reflective process to ensure signage's relation to community values

## Future Directions

### Signage in Development

- Fig 3: creative brief describing logistics of STEM signage

### Follow-Up Studies

- Direct and socially distant observation to evaluate intervention
- Potential follow up studies include a comparison study between this project and past projects

### ARTISAN creative brief

**Objective:** As we pick whatever produce we are purchasing, going through the process of which ones are good to pick. Local (passed down) knowledge, prompting adults to model how they are doing that, what senses they are using, making observations and seeing the results (e.g. if you pop the top of the avocado, it should be a certain color, pick the ones that are hard so it doesn't rot too soon; knocking the watermelon and listening to the sound etc.).

Setting/optimizing for a goal: making this dish, sweetness etc.  
Making observations: using senses (touch, smell, taste etc)  
Investigating the features of produce/fruit  
Interpreting results (aid the selection work)

See each other (parents, family members, children) as investigators.

**Key Message to Communicate:** Giving children agency -- power to pick produce/fruits -- is a key goal for the investigations.

**Target Audience:** Children: age 9-18 and their caregivers. Predominantly Latino population (so all signage in English and Spanish) also likely that literacy levels are going to be vary a lot so keep vocabulary and reading level demands low.

**Musts:** Must give kids agency over what fruits to pick. Can't be complicated (many text) easily communicated quickly engaging and fun.

**Deliverables/Requirements:** A graphic design of the sign that we can take to a local printer.

Figure 3

## Acknowledgements

I would like to acknowledge the valuable input and contributions to this poster and project by Vanessa Bermudez, Phebe Chew, Yiwen Lin, June Ahn, and members of the STEM Learning Lab.