

“Todo es ciencia”: Mexican-heritage parents’ definitions of science

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INTRODUCTION

- Early informal learning experiences at home can foster children’s STEM interest and learning (NRC, 2009).
- There is a need to leverage an emic perspective of science that is inclusive of families from culturally and linguistically nondominant communities to further an equitable approach to science learning.
- In this project, we take a strengths-based approach by asking Mexican-heritage parents of preschool-aged children to share their definitions of science.

PARTICIPANTS

- 49 Spanish-speaking parents, born in Mexico, living in San Jose, CA ($n=18$), Chicago, IL ($n=3$), or New York City, NY ($n=28$).
- 48 mothers, 1 father
- Caregivers’ age ranged from 24 to 47 years ($M=35.88$).
- Caregivers’ schooling ranged from 3 to 17 years ($M=10.16$).
- Children’s age ranged from 36 to 71 months ($M=52.69$), with 26 girls and 23 boys.

PROCEDURE

- This project is part of a larger study focused on understanding the role of stories and storytelling as a cultural resource for supporting Latine children’s early science learning.
- Following Caspe et al. (2023), parents participated in a qualitative interview. Interviews were professionally transcribed and verified.
- We isolated parents’ responses on one question for coding:

¿Cuándo usted escucha la palabra *ciencia*, en qué piensa?
(What do you think about when you hear the word *science*?)

RESULTS & DISCUSSION

- We used a grounded theory approach (Strauss & Corbin, 1998) involving an iterative, open coding process to extract codes from parents’ responses.
- Parents’ definitions of science reflected three themes: science **concepts**, **practices**, and **contexts**.
- Interrater reliability on 20% of the data was 82.9% for concepts, 100% for contexts, and 87.5% for practices (10% of the data).



- When defining science, Mexican parents of preschool-aged children often talked about science as being present everywhere, science as an active process of investigating, and science as happening in schools.

Yo siempre le digo a [mi hija], todo tiene ciencia, ¿no? O sea, todo es ciencia. Hasta que te laves las manos es ciencia...Para mí todo es ciencia, porque todo fue pensado, hecho, o es o va a ser, pero ya lo pensamos. Ya se pensó antes, ¿no? Ya se investigó antes. Ya se puso a prueba.

I always tell [my daughter], everything has science, right? I mean, everything is science. Even washing your hands is science...To me, everything is science, because everything was thought out, done, or is or will be, but we already thought about it. It was thought out before, right? It has been investigated before. It has been tested before.

¿Ciencia? Pues, me imagino que todo lo relacionado con la naturaleza, ¿no? Los animalitos, todo eso. Bueno, yo me acuerdo cuando iba a la escuela, [ríe] me acuerdo que nos hacían abrir unas ranitas y ver todo lo que tenían las ranitas adentro, y teníamos que explicar todo lo que veíamos de la ranita.

Science? Well, I imagine everything related to nature, right? The animals, all that. Well, I remember when I was going to school, [laughs] I remember they made us open up some frogs and see everything the frogs had inside, and we had to explain everything we saw in the frog.

CONCLUSION

- Our work is helping advance a greater understanding of what science means to this community and the ways Mexican-heritage parents see science reflected in their everyday lives.
- Future directions will examine whether and how parents’ definitions of science expand or change throughout the course of the full interview.