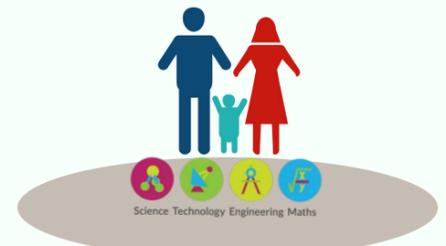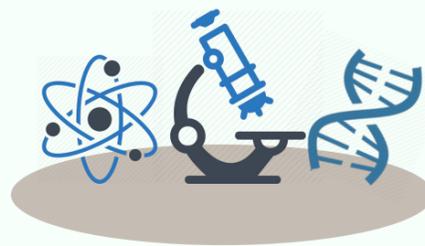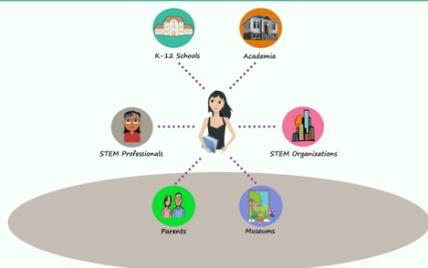# Broadening Participation In STEM:
Re-imagining the Role of Latino Parents as Equal Partners in STEM learning

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WHY STEM FAMILY ENGAGEMENT?

STEM jobs in the United States are growing at a fast rate but Blacks and Hispanics are underrepresented in science, technology, engineering and math jobs.

A vast body of research proves **family engagement** is essential for children's learning and development (Henderson & Map, 2002). However, little is known about effective STEM family engagement methods.

Families can be the answer to bridge the gap in STEM achievement.

There exists a need to broaden STEM participation with Latino families and create vibrant STEM learning ecosystems in low-income communities.

SCAN OF THE STEM LANDSCAPE
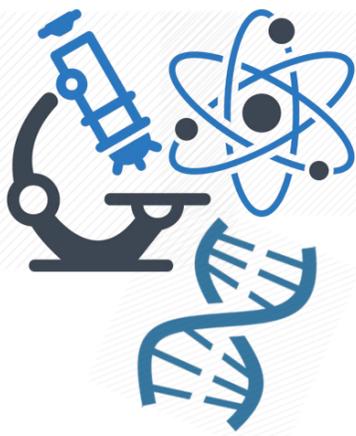
2001 - STEM education becomes a national priority to ensure youth has the necessary STEM skills to compete in a global economy.
2009 - President Barack Obama launched the "Educate to Innovate" campaign.

5 public-private partnerships
Time Warner Cable's "Connect a Million Minds" (CAMM), Discovery Communications' "Be the Future", Sesame Street's "Early STEM Literacy", National Lab Day, the National STEM Video Game Challenge, and the annual White House Science Fair.

Department of education priorities: 1) STEM instruction, 2) STEM youth engagement, 3) STEM undergraduate outreach, 4) minority outreach STEM representation, and 5) STEM workforce (Department of Education, STEM, n.d.).

FAMILIES WANT TO HELP

Families mostly excluded from the STEM achievement gap conversation

Bayer corporation study (2015) study results indicate

- 46% of parents see themselves as the biggest role in stimulating their child's interest in science.
- 31 % of parents don't feel confident enough in their scientific knowledge to help their children engage in hands-on science activities.
- 64% of parents would like their child's teacher to provide take-home science activities at least once a week, up 33 percent from 1995.
- 32 % of teachers say parent support or involvement at home would be most helpful in increasing hands-on science learning experiences... but teachers indicate they only assign an average of two take-home activities a month, down from three per month in 1995.

WHAT LITERATURE TELL US

Latino family engagement literature

Growing evidence on the impact of family engagement continues to emphasize the essential need for schools and the community to engage parents and caregivers around activities to support their children's learning at home.

Lopez (2001)
Demonstrated positive outcomes immigrant/migrant families. Parent engagement has an overall impact on student's achievement in a long-term practice.

Hoff (2013)
Parent engagement is key in young latino children to acquired strong literacy skills and had better academic success outcomes

Feder & National Research Council (2015) Demonstrated that access to STEM programs support low-income students' STEM and academic achievement

Krishnamurthi, Ballard, & Noam (2014) Introduction of STEM activities and participation in STEM programs is associated with STEM engagement throughout middle, high school and college, especially for young minority women and man.

BROADENING STEM LEARNING ECOSYSTEMS FOR LATINO FAMILIES

Diverse Settings in Everyday Science Practice for Latino STEM Family Engagement

- Research shows that access to STEM programs support low-income and minority students' STEM and academic achievement (Feder & National Research Council, 2015).
- Many of these programs often focus on access alone, assimilation, or operate from deficit-based rather than asset-based perspectives—which are growing barriers to STEM learning opportunities (Capraro, Capraro, & Lewis, 2013).

These persisting inequities in STEM demand for new learning approaches. One such new approach is the need to engage families in STEM programs.

- Family engagement strategies should not be viewed as a blanket solution but rather as an opportunity to create responsive, meaningful and culturally relevant programs. STEM family engagement programs should recognize science as rooted in cultural practices
- narratives of science for STEM family engagement must include Latino families drawing connections from their historicity to their everyday experiences. In order to do this, families must be part of co-design processes to have a voice and develop an identity as doers of science that ties this practice to Latino families understanding of science.
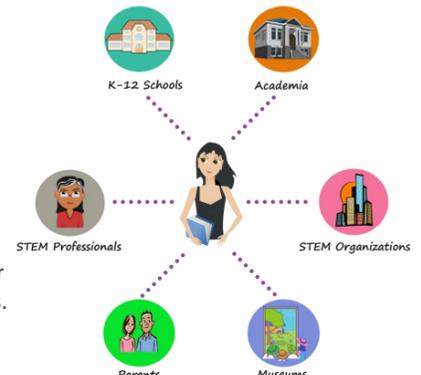
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