Cultivating Stepping Stones to Quality/Cultivando conexiones a la calidad y éxito de nuestra niñez

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Growing Connections to Quality
New Mexico Association for the Education of Young Children
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Goals/Metas

- Cultivating Dreams and Aspirations/ Cultivando sueños y las aspiraciones
- Aspirational Capital/Capital Aspiracional
- Building Affinity Spaces and Communities of Practice in your Classrooms/Desarrollando Espacios de Afinidad y comunidades de práctica
- Life Charts help map ups and downs/Las gráficas de la vida y la negociación de las altas y las bajas
- Key findings of Latinas in STEM research/Que hemos aprendido de nuestro estudio de las Latinas en carreras de ingeniería y computación
The Story of Dr. Quiñones-Hinojosa

- La historia del Dr. Q
Aspirational Capital, Capital de Aspiraciones

- Aspirations are important for cultivating a strong identity that helps students see themselves as engineers and computer scientists in the future/Las aspiraciones son importante para fomentar una fuerte identidad en la vida de los jóvenes y niños.

- Think about what has motivated you to move forward in your career? What did you do to build on your aspirations and experiences?/Que le ha motivado a usted a salir adelante? Que han hecho para darle luz a sus aspiraciones y experiencias?

- A series of dreams, hopes, aspirations, experiences, and key people have contributed to your own aspirations/Una serie de esperanzas, experiencias, sueños y estrategias han contribuido a su capital aspiracional.

- Investing in the aspirational capital of our youth helps them build strong stepping stones in their academic journeys/Mientras mas fuerte sea su capital aspiracional, sera mas facil sobrepasar los retos y las derrotas.
What are we doing to cultivate the aspirational capital of the children we work with?

- Think about the important roles educators play in encouraging, affirming, validating, and creating opportunities for children to learn, cultivate experiences to build on their aspirations and to achieve their goals to become scientists, engineers, artists, educators, or what they want to become.

- This presentation builds on the concept of aspirational capital proposed by Dr. Tara Yosso’s Aspirational Capital and Capital Wealth (2005) and on research we have conducted on Latinas in STEM fields at UT El Paso in the past 3 years.
How does one get to the Moon?
Como se llega a la luna?

- Amber’s story of wanting to get to the moon.
- Building a road to NASA
- Amber liked building, playing with legos, was curious, kept a notebook with her questions, and would seek these answers out, competitive and outgoing
- Amber would help her father build and fix things
- She joined the university and declared her major, got involved in clubs, and competitions. One day she met a NASA recruiter. Amber now works for NASA

Al llegar a la Universidad, se metió a un club, y competía en eventos de ingeniería, un día habló con una persona que vino a la Universidad a reclutar a estudiantes para la NASA, era tanto su emoción, su autoestima, y su compromiso, que la representante de la NASA le habló a alguien en su organización para que le buscaran una práctica profesional a Amber. Después hizo otra práctica profesional y a los 26 años, Amber obtuvo un trabajo como ingeniera en la NASA saliendo de la Universidad.
Creating affinity spaces and aspirational capital/
Espacios de afinidad y capital aspiracional

En casa, escuela y otros espacios

- Gee (2004) describes affinity spaces as places where people can interact with a common purpose, contribute towards a mutual goal, demonstrate commitment, and practice being.

Affinity spaces are productive, positive, and allow for creativity, play, and research.

- Our research found that students identified spaces and events/experiences where they could participate and practice being engineers and computer scientists, thus helping to build their identities.
• Affinity spaces may also be seen as “communities, where people can interact, support each other, and create meaning in what they do

• Affinity spaces have: 1) content  2) people who generate content; and 3) interactions

• Affinity spaces create portals where participants may enter and exit from these spaces
Reflect on the spaces and communities of practice that were important in your own lives. Que espacios de afinidad y comunidades de practica fueron importantes en sus vidas?

- Think about when you felt productive and with confidence in yourself, who was part of this experience? What did you work on? Who did you interact with? How did you join or build this group where this interaction took place? How did you feel achieving your goals? Piense y haga memoria de cuando usted se sintio productiva y con confianza al hacer algo, quien mas participo, que hicieron juntas, como logro incorporarse a este grupo, como se sintio al lograr sus metas?

- Reflect on the affinity spaces where you have participated in, what activities did you work on? What have you practiced becoming? What challenges did you face along the way? Who helped you? Haga una lista de los espacios de afinidad en los cuales ha participado, que actividades hacian? Que practicaban? Cuales eran sus retos para entrar a estos espacios para participar? Quien les ayudo?

- Share these moments and discuss the spaces that allowed for these interactions of meaning making and identity formation to take place. Compartan estos momentos y describan los espacios y actividades.
How may we create these Affinity Spaces when working with children? ¿Cómo podemos crear estos espacios de afinidad en nuestros salones donde educan y trabajan con la niñez?

- When you return to your classrooms/centers/homes, ask what affinity spaces and communities of practices are currently available for children?

- How can you connect your story with others to help create these affinity spaces and communities of practice at your home institution?

- Three ideas/strategies for creating affinity spaces and cultivating communities of practice to support our students’ aspirations to support children are:
  
  1. 
  2. 
  3.
Building Pathways for Success in STEM fields/Abriendo brechas, creando pasos

- What experiences and opportunities can we create for children to have experiences being engineers and computer scientists? *Que experiencias y oportunidades podemos crear para que las niñas/os puedan tener experiencias positivas para ser ingenieras/os?*

- How can we create and invest in these experiences and identities early on in lives of children you work with? Ex: Science fairs, lego competitions, visits to universities, visits with STEM professionals in real life setting so students can see and learn about the various subfields/¿Cómo podemos cultivar estas experiencias e identidades STEM a una temprana edad con la niñez con las cuales trabajan?*

- By the time students get to the university, they usually know what they are strong in and what they want to major in. Without these experiences, it’s harder to fit into these fields. Think about ways to invest into the portals or bridges into STEM fields. *Cuando los estudiantes llegan a la Universidad, generalmente ya saben lo que quieren ser y en qué son fuertes. Piensen en formas de invertir y crear estos portales o puentes a carreras en las ciencias e ingeniería.*
Life Charts help map ups and down/Las graficas de la vida

Figure 4.3 • Life Chart: Leonardo (age 28)
Most professions have reached gender parity, with the exception of computer science and engineering (CS/Eng), where female enrollment numbers remain under 19%, with Latinas representing 9% of all females. To understand the mitigating factors influencing Latinas’ enrollment and persistence in CS/Eng, an interdisciplinary team of scholars at the University of Texas at El Paso has undertaken a three-year NSF GSE-funded qualitative research project. The overarching research question was: What is the relationship among identity, resilience, and persistence of Latinas in computer science and engineering?
This NSF 3 year study looked at the experiences of 26 women, who were interviewed 3 times using the Seidman qualitative inquiry method, and 13 were interviewed for their life charts (Ramirez’ Against Machismo: Young Adult Voices in Mexico City 2008).

The study was framed using a sociocultural theory of identity (Gee, 1996; 2001; Holland, Lachicotte, Skinner, & Cain, 1998), which sees identity to be constructed through practice and social interaction.

Twenty-six (26) participants were selected using purposeful sampling (Merriam, 2001); data were collected using a focused, in-depth interviewing method in which participants reflected on their life history both in light of their career preparation and ultimately into their engineering (Seidman, 2006).
What have we learned? /Qué hemos aprendido?

- It is important to dream and let others dream and look up to reach towards the moon/Que es importante soñar y ver hacia la luna

- Family and significant others help us create practices and experiences that helped our interviewees build their identities and their vision of selves/Que la familia y otras personas en nuestras vidas nos ayudan a desarrollar practicas y experiencias que fomentan nuestra identidad

- Create spaces and opportunities to support creativity, experiments, practice at building, fixing, and making something new in supportive environments/Crear espacios para ser creativos/os, experimentar a crear, componer, y construir y fomentar la curiosidad y la práctica en espacios productivos que apoyen a nuestra niñez.
Latinas’ Resilience and Persistence in Computer Science and Engineering: Preliminary Findings from a Qualitative Study Examining Identity and Agency

We have analyzed our data using discourse analysis, constant comparative analysis, and life charting. Major themes emerging from the data analysis conducted using NVivo include the following:

Latinas report encountering academic challenges with low grades 35 refs. in 14 participants (P’s) 26 refs. in 10 P’s referred to challenges with the English language/accents being barriers to participation.

Dealing with adversity in their home/social life dealing with economic challenges 26 refs. among 12 P’s; 19 refs. to having to work full time.

Experiences where they learned to fix things and solve problems/build projects 47 references among 18 participants.

Roles of affinity spaces where Latinas learned they could be successful in stem 73 refs. In 21 participants; curiosity about STEM fields/environment 18 refs. In 11 participants.

Motivation to Select STEM fields came from family (mother/father) 33 refs. In 18 participants and other supportive people 23 references in 15 participants were significant in their identity formation in engineering.

Early education K-12: The role of engineering-related artifacts and engineering-related play experiences in developing engineering identity.
Works produced:


- My goal is to work on Life Charts as Critical Reflection Tools in the Educational Journeys of Latinas in STEM fields.
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- Thank you to today’s participants for your willingness to share your stories of resilience, challenges, and success and investing in the aspirations and creative learning experiences to help New Mexico’s children flourish