

# LATINX EDUCATOR MAKER LAB

Case Study

# How Maker Learning Can Help Teachers Engage Students in STEM and Computer Science



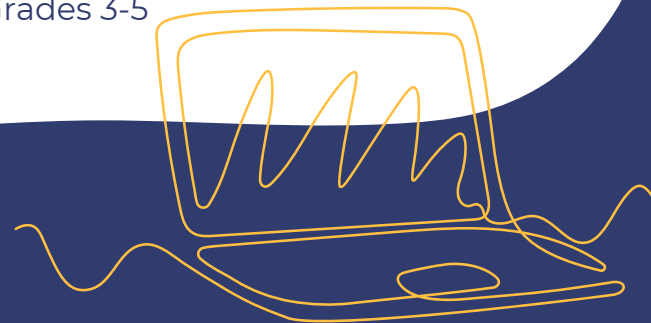
Fewer than 7% of all U.S. software engineers are Latinx. Without early intervention, we risk leaving behind more than 30% of today's student population from career pathways that offer economic opportunity – and the nation risks losing the unique contributions that Latinx populations can make to our technological landscape.

Students begin to internalize who they think belongs in STEM and computer science as early as elementary and middle school. Teachers want and need resources, training, and support to foster inclusion and build students' foundational skills. Leveraging the power of maker learning, KID Museum teamed up with the Hispanic Heritage Foundation and InfoSys Foundation USA to create the *Latinx Educator Maker Lab* – and design a replicable model to address inequities in STEM and computer science education. With a focus on supporting teachers who serve Latinx youth, this innovative program builds teachers' skills to teach computational thinking and computer science in a way that is culturally responsive and relevant to their students' lives.



**I came to this PD thinking we would be on our computers the entire time, and I was wrong. We learned plenty of computer things, but the experience was very hands-on.**

– Arizona Teacher, Grades 3-5







# Innovative, Maker-Focused Professional Development



Piloted in the 2022-23 school year, this professional development program brought together K-12 teachers who serve Latinx students, in four regions across the U.S. The participating educators came from demographically similar school districts but worked in different schools, teaching various grades and subjects.

The Lab's curriculum is grounded in maker learning and culturally responsive-sustaining education, with the goal of building teachers' capacity to create learning environments where their students feel they are known and belong. Through an initial one-day workshop followed by three virtual collaborative sessions, the teachers learned how to introduce their students to computer science through hands-on maker learning. The educators were encouraged to bring their full selves to the workshop and apply their identities as they pursued projects that mattered to them, modeling the experiences that they would then bring to their students. In one activity, educators used MIT's Scratch coding platform to create their own animated "Identity Traits" program to explore how multiple identities interact to make us all unique and complex individuals.

KID Museum's unique approach revolves around its ***Mind of a Maker*** framework, which serves as a pedagogical model comprising eight dimensions of cognitive, social, and emotional development to cultivate empathetic problem-solvers and changemakers. Blending culturally responsive-sustaining education with hands-on maker activities allows teachers and, in turn, their students to advance their technical skills while being empowered to take creative risks and iterate in a safe and supportive environment. The Lab's focus on computer science provides the perfect platform to explore in-demand 21st century skills while developing the confidence to persevere in a field that has historically excluded diverse voices and representation.



65

**K-12 teachers  
reaching approx.**

2,000

**students**

## The Key Outcome: Create a Sense of Belonging



Culturally responsive-sustaining education views students' identities and backgrounds as assets to promote their learning and sense of belonging in the classroom, especially for students of color and others underrepresented in the dominant culture. Education researcher Geneva Gay is credited with coining the term "culturally responsive teaching," writing that "when academic knowledge and skills are situated within the lived experiences and frames of reference for students, they are more personally meaningful, have higher interest appeal, and are learned more easily and thoroughly." Educators who practice CRSE deliberately make the content they're teaching relevant to students' lives, leading to deeper engagement and achievement.

## Replicate an Effective Model



This pilot professional development (PD) program proved that the model is effective. Even with limited scope and resources, the Latinx Educator Maker Lab had a positive impact on teachers' confidence in their own STEM skills and their interest in applying CRSE practices in their classrooms.

91%

of participating educators left with some measure of confidence in teaching computer science to their students

96%

left confident about their ability to center their students' voices and experiences in their classrooms

100%

said the program had a positive impact on their pedagogy and practice



**This was the best training I have ever attended.**

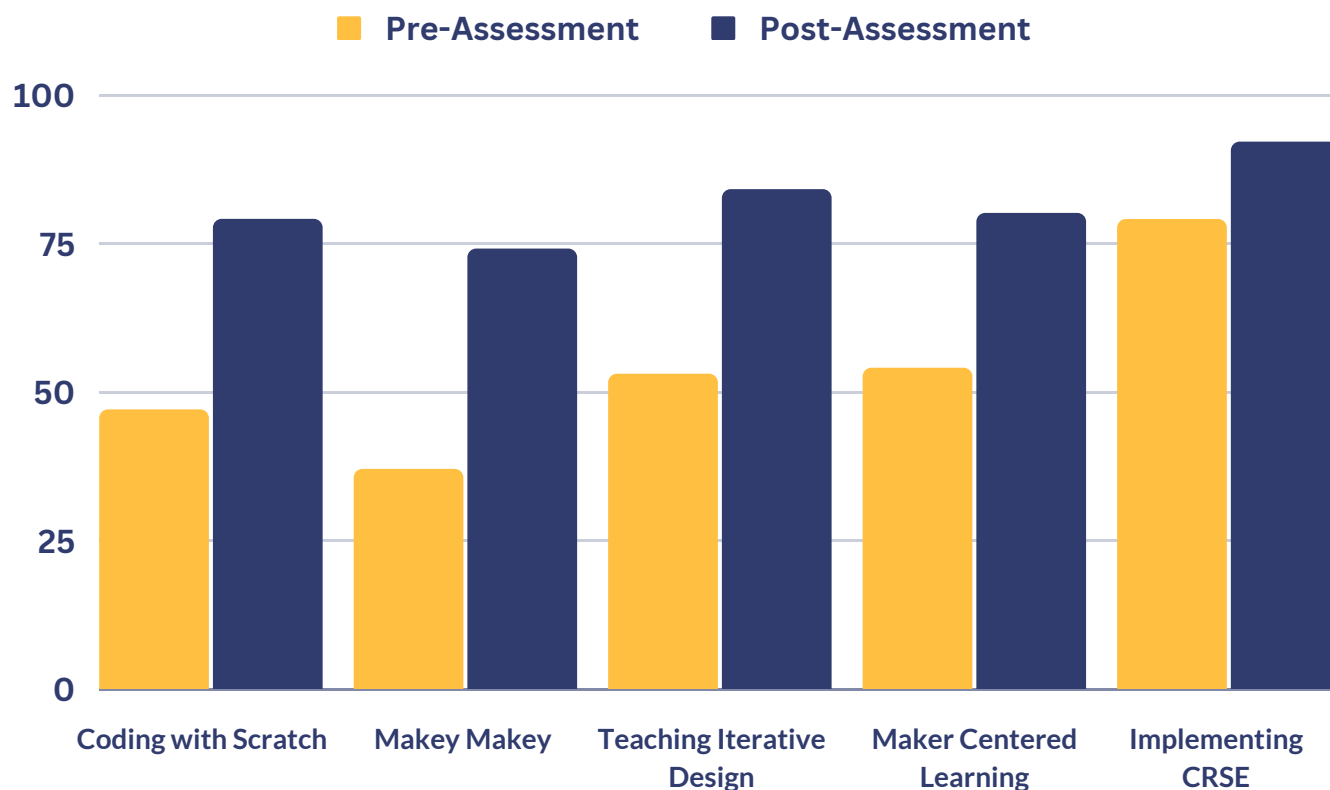
– California Teacher, Grades K-1







## % Change in Confidence and Likelihood of Usage in the Classroom as a Result of the Latinx Maker Lab PD



For future iterations, longer in-person and virtual sessions could lead to deeper and more lasting impact. Investing in a digital platform for sharing resources and ideas would further sustain the professional learning community that developed among the teachers.

Importantly, this PD model is not limited to Latinx teachers and learners. Its design, projects, and principles can be leveraged to increase access and promote belonging among any population historically left out of STEM, including girls, Black students, English learners, and youth from under-resourced communities.



**55**

**schools represented  
across six states**

**4**

**regional sites: Dallas,  
Los Angeles, Phoenix,  
and Washington DC**

**31**

**Title I  
schools**

# The Power of Professional Development at KID

Professional development for educators is a pillar of KID Museum's programming. KID Museum works in close partnership with teachers, their schools and districts, and other organizations serving youth underrepresented in STEM to create PD programs that are hands-on, experiential, and effective. Like KID's signature maker learning offerings for students, our programs for educators leverage and expand their creativity and empathy, and embrace their personal identities, so that educators feel they have the agency to develop the next generation of innovators and changemakers.



**Watch Now:**  
**Latinx Educator  
Maker Lab in Los  
Angeles, CA**

KID Museum is grateful for Infosys Foundation USA, which funded the Latinx Educator Maker Lab, and for our partners at the Hispanic Heritage Foundation.

For more information about the Latinx Educator Maker Lab and KID Museum's professional development programs, contact us at [info@kid-museum.org](mailto:info@kid-museum.org).



**Finally – a PD  
that was an  
excellent use  
of my time.**

– PD Participant

