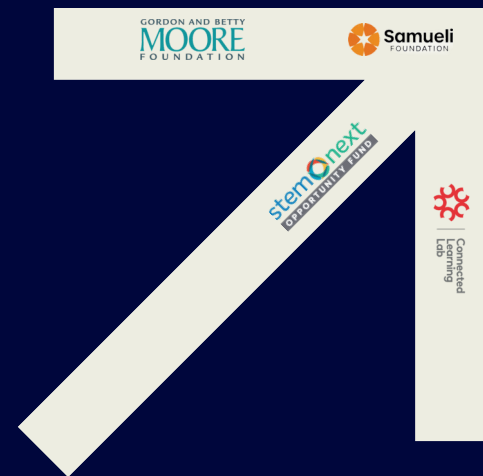


Kylie Peppler, Mizuko Ito,
Maggie Dahn, & Seth Corrigan
CONNECTED LEARNING LAB
UNIVERSITY OF CALIFORNIA, IRVINE



Strengthening Synapses: Fostering Connections and Pathways for Youth Across Out-of-School Time STEM Learning Ecosystems

Introduction

Across communities, a range of STEM out-of-school time (OST) programs are creating powerful and transformative learning experiences for youth. These programs ignite curiosity, support development of interests, and build confidence. However, even when a young person finds inspiration in a robotics club, coding challenge, or maker camp, the next step is often unclear—especially for youth most historically underrepresented in STEM fields due to race, gender, economic status, or geography. Programs are not often designed for the coordination and brokering work it takes to support young people as they aim to learn across settings and further their interests (Afterschool Alliance, 2021), yet learning that is more connected and integrated over time can contribute to more equitable and sustainable outcomes for youth (Dahn et al., 2023).

Making Connections is a multi-year research–practice partnership initiative that addresses this challenge not just at the level of supporting individual programs, but through coordinated action across learning ecosystems. Grounded in connected learning and its emphasis on making connections across settings (Ito et al., 2020), the project focuses on describing how youth move through OST and in-school STEM experiences over time—and furthermore, how network intermediary organizations, OST providers, school leaders, and mentors can work together to make those transitions more visible, supported, and sustained.

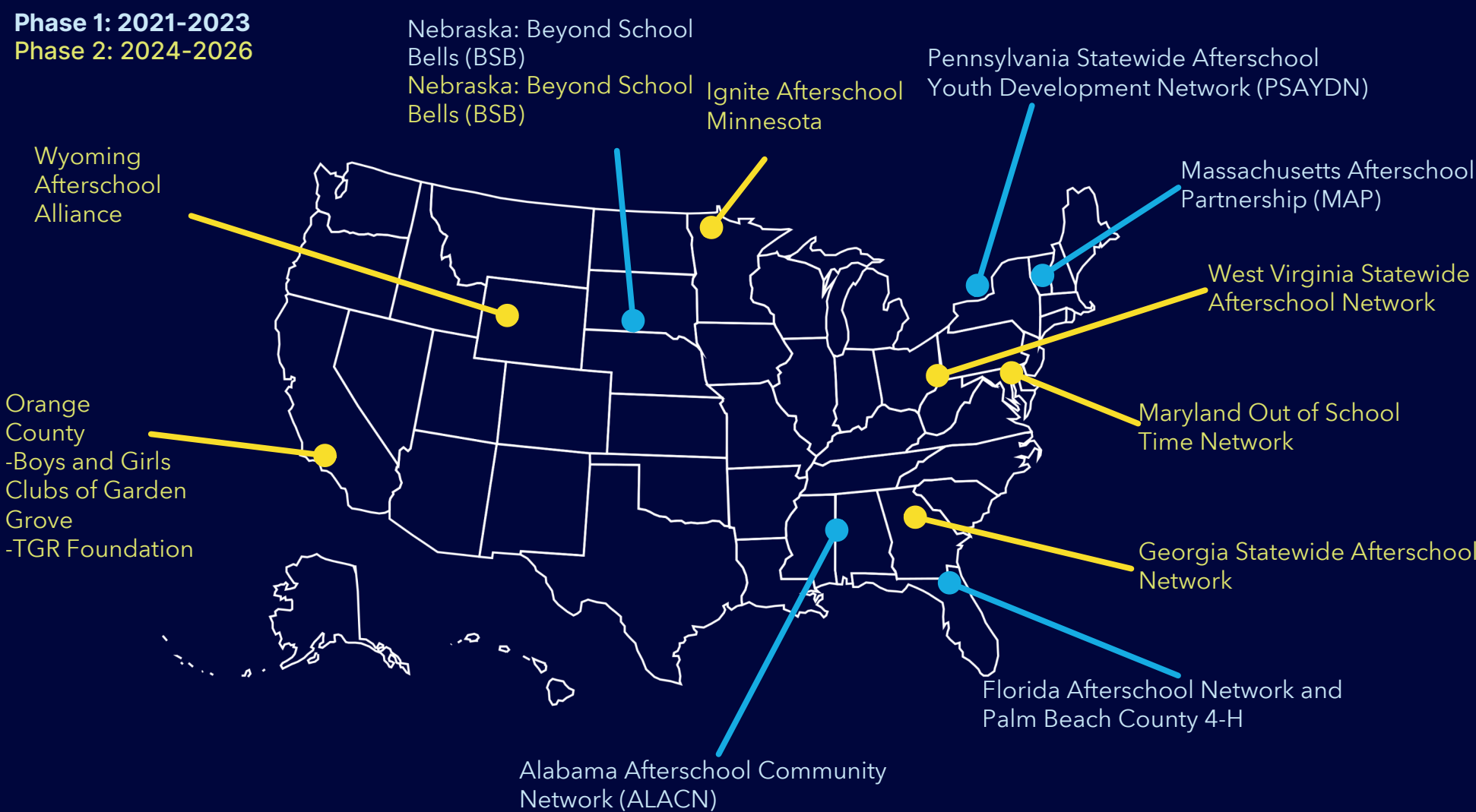
Guiding Questions and Research-Practice Partnership Timeline

How do we nurture young people’s STEM interests after a transformative out-of-school time learning experience?

What brokering and coordinating work can support young people as they learn across settings?



Partner Organizations



Making Connections Strategies

- [1]** Leveraging a wraparound model to address holistic needs to support STEM learning and development
- [2]** Coordinating between in school and out-of-school settings to cultivate youths’ STEM interests
- [3]** Giving back to one’s community through STEM/STEAM-related activities
- [4]** A mentorship model to support transitions to STEM academic and career opportunities
- [5]** Translating youth interests into STEM career and entrepreneurship opportunities
- [6]** Building relationships with families and youth to get buy-in for pursuing immersive STEM opportunities
- [7]** STEM repository building through the curation of an online tool to link young people to STEM opportunities
- [8]** Open portfolios to track STEM learning and progress across settings

Emerging Insights Across Cases

Network collaboration is essential in rural settings: Successful networks work to connect organizations both to resources outside their immediate communities and to underutilized resources that already exist locally. These networks often share effective practices across state lines to overcome the challenges of distance and limited local capacity.

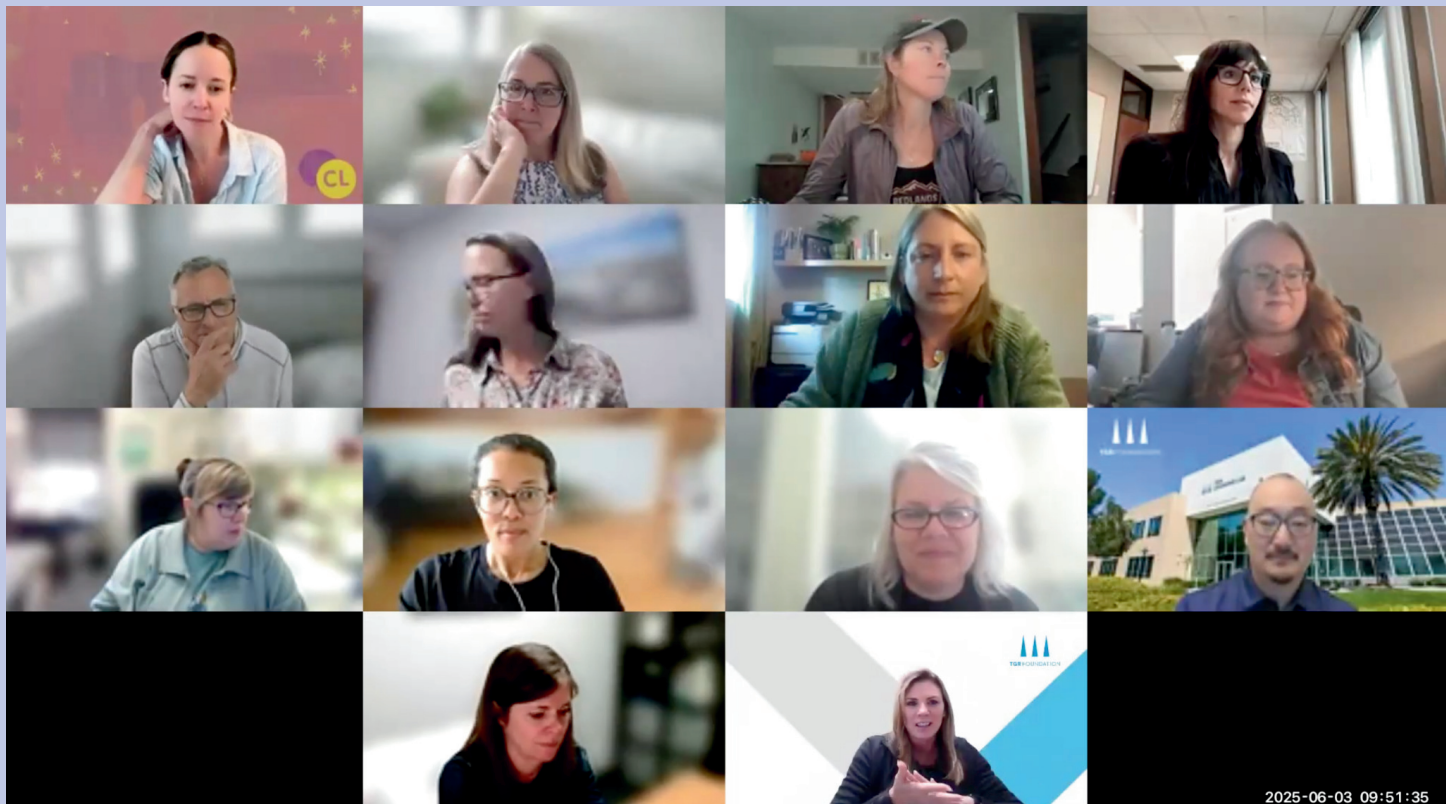
Relationship redundancy supports resilience: Building connections across multiple individuals within partner organizations ensures continuity when staff turnover occurs.

External partnerships enrich programming: Industry, government, and nonprofit connections create authentic experiences that internal resources alone cannot provide.

Network-level investments yield ecosystem benefits: Funding state networks to coordinate local programming creates greater impact than supporting isolated programs

Long-term relationships require sustained support: Effective partnerships take time to develop and require multi-year funding commitments

Equity requires targeted design: Reaching historically marginalized youth demands culturally responsive approaches, family engagement, and removal of participation barriers



Interested in Learning More?

READ case studies on the making connections website via the Connected Learning Lab: <https://connectedlearning.uci.edu/projects/making-connections/>

READ academic publications related to the project:
Dahn, M., Peppler, K., & Ito, M. (2023). Making connections to and from out-of-school experiences. *Review of Research in Education*, 47(1), 443–473, <https://doi.org/10.3102/O091732X231211271>
Dahn, M., Peppler, K., & Ito, M. (2023). “We hear everyday, ‘This isn’t me.’” Translating interests toward STEM through entrepreneurial making. *Frontiers*, 7(2), 1–6. <https://doi.org/10.3389/feduc.2022.1033742>

Reach out with any questions!
dahnm@uci.edu
kpeppler@uci.edu
scorrig1@uci.edu
mizuko@uci.edu

REFERENCES

AFTERSCHOOL ALLIANCE (2021). STEM LEARNING IN AFTERSCHOOL IS ON THE RISE, BUT BARRIERS AND INEQUITIES EXIST. AFTERSCHOOL ALLIANCE.

ITO, M., ARUM, R., CONLEY, D., GUTIERREZ, K., KIRSHNER, B., LIVINGSTONE, S., MICHALCHIK, V., PENUEL, W., PEPPLER, K., PINKARD, M., RHODES, J., SALEN TEKINBAS, K., SCHOR, J., SEFTON-GREEN, J., & WATKINS, S.G. (2020). THE CONNECTED LEARNING RESEARCH NETWORK: REFLECTIONS ON A DECADE OF ENGAGED SCHOLARSHIP. CONNECTED LEARNING ALLIANCE.