

# Afterschool Matters

Number 41 • Summer 2026



*National  
Institute on  
Out-of-School  
Time*

**AT THE WELLESLEY  
CENTERS FOR WOMEN**

***Afterschool Matters***

Georgia Hall  
*Managing Editor*

Elizabeth Starr  
*Associate Editor*

Deborah Wenger  
*Editor*

Daniella van Gennep  
*Designer*

*Afterschool Matters* is a national, peer-reviewed journal dedicated to promoting professionalism, scholarship, and consciousness in the field of afterschool education. Published by the National Institute on Out-of-School Time, the journal serves those involved in developing and running programs for youth during the out-of-school hours, in addition to those engaged in research and shaping policy. For information on *Afterschool Matters* and the Afterschool Matters Initiative, contact

Georgia Hall  
*Director & Senior Research Scientist*  
*National Institute on*  
*Out-of-School Time*  
Wellesley Centers for Women

Wellesley College  
106 Central Street  
Wellesley, MA 02481

***Afterschool Matters***  
***Editorial Review Board***

Ken Anthony  
*Connecticut Network for*  
*Children and Youth*

Lisette DeSouza  
*NYU, Metro Center*

Josh Gillman  
*Kids Can Community Center*

Anita Krishnamurthi  
*Afterschool Alliance*

Amy Lang  
*University of Maryland*

Dyann Logwood  
*Eastern Michigan University*

Jill Richter  
*American Institutes for Research*

Brandis Stockman  
*National League of Cities*

REVIEWER

Patricia McGuinness-Carmichael  
*National Institute on Out-of-School Time*

# table of contents

Afterschool Matters Number 41, Summer 2026



## **Fostering STEM Participation for Minoritized Youth** *Lessons from the Downtown Boxing Gym*

Amanda S. Case, Nielsen Pereira, Yiheng Zhou, Viviana Piceno, & Tugce Karatas

## **Supporting OST Staff Social and Emotional Learning** *Using Mindfulness-Based Professional Development*

Helen Lee, Rachael Hocesvar, & Janelle Salcedo



## **Bridging the Translational Gap** *A Research-Practice Partnership in Equity-Focused Informal STEM Education*

Kristin Michod Gagnier, Megan C. Sharkey, Laura Holian, Melissa Kurman, Maya Heiland, & Steven J. Holochwost

## **Impact of the Summer Reading Explorers Program on Hispanic/Latinx Dual Language Learners**

Maria C. Morales, Elsa Bravo, Orlena Ramirez, Laura Gomez, Angela Waguespack, & Katie C. Hart



## **Literacy-Related Services in Partnership with Schools** *Community-Based Organizations' Perceptions of Facilitators and Barriers*

Kristen D. Beach, Kristin D. Sinclair, Jennifer L. Merry, Chris O'Brien, Shannon Pardue, Adriana L. Medina, &

## **Translating Research into Practice** *Co-Designing Research-Based Tools with Mentors and Program Leaders*

Ta-yang Hsieh, Justin Roskopf, & Mike Foote





# Fostering STEM Participation for Minoritized Youth

## Lessons from the Downtown Boxing Gym

**Amanda S. Case, Nielsen Pereira, Yiheng Zhou, Viviana Piceno, & Tugce Karatas**

The demand for workers who are prepared to fill science, technology, engineering, and mathematics (STEM) jobs in the United States has been increasing steadily over the past several decades (U.S. Department of Labor, 2021).

Unfortunately, this demand has not been matched by increased preparation of STEM workers, resulting in an “accelerating STEM talent crisis” (National Science Board, 2024) in the country. One contributor to the shortfall in STEM workers is inequitable exposure to high-quality STEM curricula in U.S. public schools, leading students from economically marginalized backgrounds, many of whom are students of color, to have fewer opportunities to pursue STEM careers (Cherng et al., 2022; Olszewski-Kubilius et al., 2017). In response to these systemic barriers, the U.S. Department of Education re-envisioned STEM preparation to extend to out-of-school time (OST) informal learning spaces.

Although considerable research has documented the effectiveness of OST STEM programming in facilitating the development of characteristics tied to STEM career involvement (e.g., Hughes et al., 2013; Vossoughi et al., 2016), only a handful of those studies have been conducted in partnership with OST programs that target economically marginalized students of color (e.g., Cole & Espinoza, 2008; Young et al., 2019). As a result, limited guidance is available for how OST STEM programming can be structured to prepare these historically disenfranchised students for STEM careers. To address that gap, this article draws on social cognitive career theory (SCCT;

---

**AMANDA S. CASE**, PhD, is an associate professor at the University of Iowa.

**NIELSEN PEREIRA**, PhD, is an associate professor at Purdue University.

**YIHENG ZHOU** is a PhD student at the University of Iowa.

**VIVIANA PICENO** is a PhD student at Purdue University.

**TUGCE KARATAS**, PhD, is the program coordinator at Purdue University.

Lent et al., 1994) to review how engagement with a STEAM (STEM + Arts) lab embedded in a non-STEM-focused community-based OST program (Downtown Boxing Gym) affects the economically marginalized middle- and high-school students of color the program serves.

## Differential Exposure to Quality STEM Learning Opportunities

For decades, research has documented considerable disparities across racial groups in K-12 school exposure to quality STEM learning opportunities (e.g., Cherng et al., 2022; Polman & Miller, 2010). These disparities have been attributed to gaps in the STEM resources, experiences, and classes students have access to based on the income level of their K-12 schools (Change the Equation, 2017). Because Black and Latinx students are more likely to attend high-poverty schools in comparison to their White and Asian peers (Hussar et al., 2020), they are less likely to be exposed to STEM curricula that foster their excitement about and preparation for STEM majors in higher education (ACT, 2019). In particular, the National Assessment of Education Progress (NAEP; National Center for Education Statistics, 2015) found that fourth grade students enrolled in high-poverty schools, which nearly 50% of Black and Latinx students attend, were significantly less likely to have opportunities to participate in experiential science activities than students in high-income schools.

The offering of such hands-on learning opportunities is essential to initiating and sustaining student interest in STEM topics and careers (e.g., Mohd Shahali et al., 2018). As a result of the vast disparities in STEM resources across schools, minoritized students must often rely on contextual support outside K-12 settings to overcome systemic barriers in STEM education. For example, Park-Taylor et al. (2022) found parental support to be especially crucial to facilitating STEM interests among Black and Latinx students, as these students are less able to rely on schools for preparation. One way parents enact that support is by seeking out informal STEM programs; indeed, parents of Black and Latinx

students report the highest rates of STEM learning opportunities in their children's afterschool programs across racial groups (Afterschool Alliance, 2021).

## Benefits of OST Involvement for Minoritized Students

Research has documented that high-quality OST programs such as camps, museum activities, and university-led programs have the potential to compensate for K-12 barriers to STEM involvement for minoritized students by improving students' STEM achievement, efficacy, interests, identities, and career outcomes (e.g., Baran et al., 2019; Mohr-Schroeder et al., 2014; Young & Young, 2018). These benefits of OST STEM programming can be attributed to the unique affordances available in such contexts. As a result of this robust research, the U.S. Department of Education under the Obama administration specifically named OST programs as essential contributors to cultivating a strong and diverse STEM workforce (The White House, 2009).

Despite these promising benefits, research on informal OST STEM programming has been critiqued for several reasons. First, most research focuses on OST programs that explicitly brand themselves as STEM focused (e.g., Robotics Club, Code Ninjas, AI Trailblazers, Space Camp). Consequently, although this

research effectively elucidates the experiences of students with sufficient STEM interests or identities to choose to participate in such spaces, it does not explore how OST spaces could support the development of students who have not yet had an opportunity to develop positive STEM attitudes (Blanchard et al., 2023). Second, research on OST STEM learning is often cross-sectional and focuses on short-term programs (i.e., 6–8 weeks) (Renninger, 2007). As a result, evidence is missing about the impact of longer-term programs and whether that impact is stable across time. Filling the gaps in this research would uplift the work of informal OST STEM spaces and continue to advance knowledge about what enables such OST spaces to effectively broaden STEM participation of minoritized youth.

Parents of Black and Latinx students report the highest rates of STEM learning opportunities in their children's afterschool programs across racial groups.

## Theoretical Foundation

Social cognitive career theory (SCCT), which is based on Bandura's (1986) social cognitive theory of learning, asserts that career outcomes are the result of the interplay between individual and contextual factors, including personal inputs (demographics), interests (preferred activities or behaviors), self-efficacy (belief in one's ability to successfully complete tasks with effort), outcome expectations (subjective estimation of one's likelihood of achieving certain outcomes), and contextual supports and barriers (contextual factors and other individuals that encourage or restrict self-efficacy and goal setting). SCCT emphasizes that career development is a dynamic and interactive process in which contexts create affordances for students to develop self-efficacy and outcome expectations, which then collectively shape career interests, choices, and performance (Lent et al., 2000).

Since its development more than 25 years ago, SCCT has been applied to make sense of racial and ethnic disparities within STEM fields (Fouad & Santana, 2017). Numerous studies have validated the theory's effectiveness in predicting STEM-related educational and career aspirations and achievements among middle and high school students of color who have historically been underrepresented in STEM fields (e.g., Flores et al., 2017; Garriott et al., 2014). This research has found that contextual supports such as mentoring and informal OST programs can mitigate systemically fostered disparities in self-efficacy and outcome expectations between racially minoritized students and their white peers (Fouad & Santana, 2017; Krishnamurthi et al., 2014). To date, however, limited work has examined OST STEM programming through the lens of SCCT. As a result, it is currently unknown whether such programs can provide the contextual support often missing in the formal educational environments of economically marginalized youth of color to encourage students' STEM interests, self-efficacy, and outcome expectations.

## Study Purpose and Setting

The purpose of the current study was to examine how engaging in STEM programming within a more gen-

eralized OST program affected students in domains aligned with SCCT. The study took place at the Downtown Boxing Gym (DBG), an informal OST program with the mission of fostering the holistic development of youth from the Metro Detroit area. DBG was founded in 2007 by Khali Sweeney, a member of the local community who sought to create a safe and enriching space that can support students' social and emotional development, educational and occupational preparation, and physical and psychological wellness (for more information about DBG and Mr. Sweeney, see Case et al., 2022). To achieve this mission, DBG provides culturally situated mentoring, comprehensive tutoring, and enrichment programming at least five days a week, year-round, at no charge. In addition, to support students' college and career readiness, DBG staff run workshops and provide one-on-one advising to help students understand the hidden college curriculum, consider majors that align with their career goals, apply for financial aid, finalize college applications, and visit college campuses. To reflect and respond to students' cultural backgrounds, the program is implicitly structured around the Black American values of family closeness and community bonding along with personal

autonomy (Smith et al., 2019; Tamis-LeMonda et al., 2007). These values are manifest in DBG's practices, such as intergenerational mentoring from peers and adults, sharing meals, emphasizing multidimensional well-being, and reinforcing students' agency in meeting their goals with support.

Empirical research has supported DBG's approach. Case and Christophe (2019) documented how participating in the gym supports students' academic and social self-efficacy, with results indicating that the gym exposed students to opportunities essential for efficacy development. These results were supported by data from DBG parents, who similarly noted their children's increased efficacy, self-control, and confidence and articulated the myriad ways in which they were motivated and enabled to engage with the gym (Case, 2020). In these studies, as well as in a psychobiography conducted on the gym's founder (Case et al., 2022), students and parents attributed the effectiveness of the gym to the fact that it reflects students' cultural contexts

**DBG provides culturally situated mentoring, comprehensive tutoring, and enrichment programming at least five days a week, year-round, at no charge.**

and values. Students described feeling safe, valued, and understood in the gym (Case, 2019; Case et al., 2022), which enabled them to try out new ways of being that they could generalize to their lives outside the gym (Case & Christophe, 2019). This was especially the case during the COVID-19 pandemic, when DBG went to great lengths to not only maintain but also extend supports for youth and family well-being (Case et al., 2025).

Because of the gym's supportive context and relational design, DBG hypothesized that it could be a safe space for students who were not initially drawn to explicit STEM programming to explore their STEM interests and identities. In 2017, with funding from Community Connections of New York, Inc., DBG built a STEAM lab in its existing building to expand programming and target students' STEM preparation. During the time of the study, which took place from fall 2019 through spring 2020, the STEAM Lab was equipped with a variety of makerspace resources and overseen by a full-time STEAM Lab instructor with a background in elementary education and informal science education. The STEAM Lab instructor provided programming two to three days a week with occasional weekend workshops and field trips.

STEAM Lab programming is based on a curriculum collaboratively developed by the STEAM Lab instructor and DBG students. The curriculum explores meaningful, multi-week themes (e.g., creating a visual artificial intelligence system) using project-based learning that exposes students to a variety of STEM concepts. In keeping with DBG's student-centered approach, weekly topics and themes are voted on by the students, resulting in a curriculum that is designed around student voices and interests. The curriculum is further individualized to match the age and skill level of students to ensure inclusion and accessibility. To reflect the communal nature of the gym, the STEAM Lab uses a cohort-based model that allows learners to progress through the curriculum together and grow as a collective. Through this model, students can leverage their relationships with one another as they explore their STEAM interests.

**Participating in the gym supports students' academic and social self-efficacy, with results indicating that the gym exposed students to opportunities essential for efficacy development.**

In this study, we sought to evaluate whether and how the STEAM Lab created contextual supports that enabled the development of students' STEM interests, self-efficacy, and outcome expectations over time. To do so, we collected qualitative data across an eight-month period (September 2019–April 2020). Through the analyses of these data, we aimed to capture insights about the structure and impact of DBG's STEAM lab that can be shared with other informal OST programs that seek to offer STEM programming.

## **Methods**

### **Procedures**

After securing IRB approval, participants were recruited by DBG staff members who distributed the informed consent form to caregivers online. The children of caregivers who consented to participate were then invited to participate in a focus group. Focus group composition was determined by DBG staff in consultation with the researchers, with priority given to hearing from a range of students who represent the demographics of the students DBG typically serves. To gather data from a broad range of students at multiple times throughout the year, four semistructured focus groups were conducted at DBG in September and October 2019 and an additional three focus groups were conducted in April 2020 via Zoom due to COVID-19 restrictions. All focus groups were video- and audio-recorded. At the start of each focus group, the faculty researchers introduced themselves, explained the purpose of the focus groups, and outlined norms for the discussions, including avoiding overlapping talk and emphasizing that there were no "correct" answers. Following this, the participants introduced themselves by stating their name and grade. The focus groups varied in size from three to 12 participants and lasted between 30 and 50 minutes, with an average duration of 39 minutes.

### **Participants**

Participants included 46 students enrolled in DBG at the time of project implementation. Three of these

students participated in both the fall and spring focus groups, with the remaining 43 participating in only one of the two focus groups. This sample composition enabled us to hear from a significant portion of enrolled DBG students at various points in the school year. In alignment with DBG demographics, 70% of participants were male and 30% were female. Almost all participants self-identified as Black or African American ( $N = 41$ ), with the remaining participants identifying as Asian/Pacific Islander ( $N = 1$ ), Hispanic/Latinx ( $N = 1$ ), White ( $N = 1$ ), and biracial ( $N = 2$ ). The ages of the participants ranged from 8 to 17, with an average age of 12.1 years. In accordance with DBG policy, information on economic status was not collected for participants; however, drawing on data from enrollment forms, DBG staff indicated that nearly 100% of the participants were eligible for free or reduced-price lunch at school.

### Focus Groups

Seven semi-structured focus groups were conducted for the project (four in fall 2019 and three in spring 2020). In keeping with the overarching structure of SCCT, focus groups gathered data on five main topics: (1) student experience with STEM activities and classes (e.g., “How do you feel about the [STEM] classes you take at school and activities you do outside of school?”); (2) student awareness of, interest in, and expectations to hold STEM careers (e.g., “What types of jobs can you think of that involve [STEM]? Would you want to have one of those jobs in the future?”); (3) student self-efficacy and perceived support for STEM careers (e.g., “If you wanted to, do you think you could have a job in a [STEM] field in the future? What kind of encouragement or discouragement do you get from friends and family about having a job in a [STEM] field in the future?”); (4) student engagement with and enjoyment of the STEAM Lab (e.g., “What kinds of activities have you done in the STEAM Lab this year?”), and (5) student perceptions of learning as a result of STEAM Lab involvement (e.g., “What do you think you’ve learned through the STEAM Lab activities?”).

### Data Analysis

After transcribing the audio recordings of the interviews verbatim, the research team—consisting of

faculty members and graduate students—analyzed the transcripts both deductively and inductively following Braun and Clarke’s (2006) thematic analysis method. This approach allowed for the examination of themes that aligned with SCCT as well as new emergent themes that diverged from the theory. To ensure the credibility and trustworthiness of the results, team members used peer debriefing to resolve coding discrepancies.

## Results

Thematic analysis of focus group data revealed a variety of themes that aligned with SCCT. Participants described the importance of interests and self-efficacy in affecting their outcome expectations about STEM topics and careers. According to participants, these interests and efficacy beliefs were highly influenced by contextual supports and barriers that varied significantly across contexts, highlighting how important in- and out-of-school messages and instructional strategies are in supporting STEM outcomes. To respect the interpretive purpose of qualitative work, which values meanings informed by both common and unique data points (Polat, 2025), the number of individuals who spoke to a particular theme are not included.

### Interests

When participants were asked what motivated them to pursue STEM-related opportunities inside and outside DBG, interests played a key role. For many of the participants, this interest was tied to overall enjoyment, with several students describing STEM activities, regardless of context, as “fun” and “exciting.” Other participants were more specific, with one participant saying, “I like building stuff a lot. And I like using technology and helping people with technology.” Another said, “I like science [because] I like doing experiments and ... figuring out how things work.” Because of this interest and enjoyment, multiple participants described “want[ing] to do more” STEM activities so they can “learn more.”

Participants also described their interests in STEM as linked to the value utility of STEM content knowledge. As one participant noted, “You can’t walk outside ... without learning math. You got to know how much gas to put in your car. You got to know

Participants described the importance of interests and self-efficacy in affecting their outcome expectations about STEM topics and careers.

how much it costs. ... It's math everywhere." Similarly, another participant shared, "When I go out into the community or go out in the world, [I] can remember what we did [with STEM] and ... it can stick with us forever." In this way, participants highlighted how STEM content is beneficial not just academically or occupationally but in their daily life as well, which fostered their interest.

### **Self-Efficacy**

In addition to interests, some student narratives were interwoven with themes about the role of self-efficacy in fostering their engagement with STEM content and activities and their outcome expectations related to STEM careers. For example, many of the participants described being "good" at STEM subjects, which resulted in them both wanting to engage in those activities more and consider careers in those subject areas. As one student noted, "If I understand [the topic] and I'm doing it and it's right, then it starts being fun."

Interestingly, however, feeling efficacious about a topic wasn't enough to make some students want to pursue that subject further. As one student said, "Another thing is, things you're good at is not always something you like to do. Like I'm good at science, but I do not like learning science. But I'm good at it. That's why I put my interest first. Because I do not want to be bored at work." Similarly, another student noted how, for them, math isn't interesting because it is "way too easy," which makes them less interested in considering math fields. In these statements, the students captured the intricacies involved in career decision making, which extends well beyond what students feel efficacious in.

### **Contextual Supports and Barriers**

Almost all the student narratives related to STEM interests and efficacy seemed to be nested in broader descriptions of contextual supports and barriers. Students described their STEM interest and efficacy primarily as based on the structure of their STEM learning spaces. In describing such spaces, participants focused particularly on two contexts: school-based STEM classes and DBG's STEAM Lab.

In the school context, students reported varied experiences. Some participants named a variety of school-based STEM experiences they found interesting, ranging from hands-on science

experiments that involved "mixing chemicals up" to engineering projects like building "bridges" and a "paper skimmer" to technology-enhanced learning that required them to "use our computers every day" to learn how to "mak[e] our own websites and ... cod[e]." At the same time, however, multiple participants noted that their school-based STEM education was "boring," primarily involving "read[ing] books on topics or ... do[ing] worksheets" but never doing "experiments like [those described above]."

Students made sense of these varied school experiences in multiple ways. In the focus groups that occurred after the COVID-19 lockdown, some students noted that their school experiences with STEM had been altered by broader pandemic-related changes. As one participant noted, "I was doing a little bit [of hands-on STEM activities] at school, but ... [that] was pre-COVID." However, more important in shaping these school-based STEM experiences seemed to be teachers and the instructional strategies they used. As a group, participants shared mixed experiences with schoolteachers. A few praised their teachers for making STEM subjects "fun," but most had more negative descriptions of their teachers, which in turn affected their feelings about STEM subjects. For example, one student noted, "My math class is irritating. ... I don't like [math] ... because my teacher is irritating," and another shared that "the first year [of engineering] was boring, I didn't really enjoy it. But it's because I didn't care for the teacher. But the second year was a lot more enjoyable because [she was] probably my favorite teacher."

In addition to general feelings of liking or not liking individual teachers, students also attributed their feelings about their STEM schoolteachers to instructional strategies. Of particular importance to fostering positive feelings about STEM teachers and subjects was whether hands-on activities took place in the class: "Our teacher, she wants [us] to take all these notes and we don't have time to do our hands-on activity." In addition, students named peer collaboration as an important factor in their feelings about their STEM teachers: "In my technology class, teacher ... don't give us time to work together. She just want us to sit there and be on the computer by ourselves and don't let us do stuff together." In these statements, students identified specific contextual barriers to STEM engagement that affected their overarching attitudes toward STEM.

These descriptions of school-based STEM teachers and experiences stood in contrast to the way participants described DBG's STEAM Lab—a contrast that several participants noted explicitly through statements such as “[STEAM Lab] is better than regular school.” Indeed, when participants were asked to describe the STEAM Lab, they universally used positive terms, claiming it was “fun” and “entertaining” and that they “just love it very much.” As was the case in their descriptions of school-based STEM experiences, students largely attributed their experience in DBG's STEAM Lab to the instructors and their instructional strategies. In addition to describing their excitement to see the instructors on a daily basis, participants also shared how the STEAM Lab instructors helped them enjoy what they were learning by making it safe to make mistakes: “It's not only [that the instructor] was there, [but] he gave us the opportunity to try again. Not, ‘Oh, you did a bad job,’ he gave us opportunities. So, when we had an opportunity, we had fun.”

The participants also described how, in addition to creating an environment in which students could make mistakes and try again, STEAM Lab instructors prioritized hands-on learning, which contributed to participants' positive feelings about and experiences in the STEAM Lab and beyond. As one student noted, “[STEAM Lab activities are] hands-on. It is not really much of listening. It's more of actually ... touching and stuff.” Another echoed this idea, saying, “You just don't sit there and do all work all day ... and [have to] wait [for] the activity. We do it straight up.” Because of the hands-on activities in a supportive environment, students described feeling “happy” in the STEAM Lab and “want[ing] to do [it] more ... because it make me want to know more about it.” In addition, participants noted longer-term impacts of their experiences in the STEAM Lab: “Yeah, after my first year going to [the STEAM Lab], I knew I wanted to do it when I grow up.” In these statements, students put voice to the considerable impact the structure and design of the STEAM Lab had on their attitudes toward STEM.

## Discussion

The purpose of this study was to explore the potential of generalized OST spaces to support the STEM

**Of particular importance to fostering positive feelings about STEM teachers and subjects was whether hands-on activities took place in the class.**

development of minoritized youth by examining how DBG's embedded STEAM lab affected students through the lens of SCCT. Although SCCT has been used to theorize how contexts can shape career-related factors, no previous studies that we are aware of have applied SCCT to informal OST STEM programs. Doing so is essential, however, as OST programs provide necessary enrichment opportunities that may not be available to minoritized youth in their schools. Although our findings must be considered with the

limitations of the study in mind, results indicate that DBG's STEAM Lab provides contextual supports for participants' STEM interests and efficacy that are often unavailable in their schools.

Findings highlight the role that components of SCCT played in the participants' experiences with STEM programs in school and in DBG's STEAM Lab. Students described alignment between STEAM Lab topics and their interests as well as contextual barriers and supports (e.g., STEAM Lab coaches) as part of their motivation for participating in the STEAM Lab. In addition, students described the importance of supportive, affirming instructors in their decision to attend STEAM Lab activities. This aligns with previous research about how contextual supports such as mentoring and community programs can provide supportive contexts in which minoritized students' self-efficacy and outcome expectations can be encouraged (e.g., Fouad & Santana, 2017; Krishnamurthi et al., 2014). Students also described their school experiences in STEM classes in contrast to their experiences in DBG's STEAM Lab, identifying the lack of hands-on learning experiences in school as limiting their excitement about STEM. Through these statements, participants highlighted the importance of hands-on learning in sustaining their interest in STEM topics (Mohd Shahali et al., 2018) and of making connections between science learning and real life.

## Limitations and Future Directions

This study has a few limitations. First, the COVID-19 pandemic invariably affected the structure and opportunities for STEM learning in schools, which was reflected in the data. Although data from before

the COVID-19 pandemic documented the limited opportunities students attending high-poverty schools had to engage in hands-on STEM learning (e.g., ACT, 2019; National Center for Education Statistics, 2015), future studies should reexamine students' current experiences with hands-on STEM learning in schools. Second, because of social desirability risks introduced through focus groups, future studies could also include individual student interviews or other qualitative data, such as observations or videos of students participating in STEAM Lab activities, to provide different perspectives on the structure and impact of the STEAM Lab. Finally, future studies could track the actual career choices of students who participated in the DBG STEAM Lab to investigate its longitudinal effects on their career development.

### **Implications for OST STEM Programming**

Results of this study have several implications for OST programs that are interested in offering STEM programming (see Table 1). Most importantly, the findings highlight the utility of SCCT in understanding how to effectively structure OST STEM programming. As the results indicate, the contextual supports built into DBG's STEAM Lab played an essential role in fostering student efficacy and engagement, especially as a result of the ways the lab leaned into student interests. As the participants in the study noted, their participation in the STEAM Lab was driven largely by their excitement about and the value utility of the topics being explored in the lab. These results are not surprising, given the design of DBG's STEAM Lab. Students are directly involved

in curricular decisions by providing input on lab topics and participating in the iterative refinement of activities even after they start. Because of this, DBG can leverage student interests and enthusiasm to introduce students to new or more advanced STEM topics.

Unfortunately, student interests are rarely the drivers of STEM curricula, especially in school but even in OST programs. However, they can be such drivers if other OST programs adopt similar strategies as DBG. In particular, to ensure that STEM activities align with student preferences and feel relevant to students' lives, other OST programs should have students brainstorm potential STEM programming topics prior to designing the curriculum and then have students vote on which topics they would like to explore. Programs could also ask students to identify social problems or questions that could be addressed in OST STEM spaces through problem-based learning (Dischino et al., 2011) and use those social issues to guide program planning. Finally, OST staff should regularly solicit feedback from students about whether the programming is aligning with their interests through informal conversations or anonymous surveys and be prepared to make adjustments based on that feedback. In doing so, OST staff can ensure that students' voices are included in ongoing curricular decisions.

Other OST programs can learn from results of this study about how to create environments that encourage students to participate in STEM programming. In particular, in alignment with SCCT's emphasis on contextual supports, participants noted

**Table 1. Recommendations for OST programs**

| <b>Intention</b>                                  | <b>Recommendations</b>                                                                                                                                                                                                                             |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prioritizing student interests                    | Invite students to brainstorm and vote on STEM topics/activities.<br>Link STEM activities to student-identified social issues.<br>Solicit regular student feedback to ascertain curricular alignment with current student interests.               |
| Creating safe environments for STEM participation | Build safe, supportive relationships.<br>Prioritize process over outcomes.<br>Provide professional development in inclusive pedagogy.<br>Model making mistakes and learning from mistakes.<br>Design activities that require iterative refinement. |
| Drawing all students into STEM                    | Make connections between existing program focus (e.g., sports, crafts) and STEM concepts.<br>Help students tie STEM concepts to their passions.                                                                                                    |

not only their relationships with the STEAM Lab instructors as key to their participation, but also that the atmosphere in the lab made them feel safe to try out new ideas and make mistakes. As STEM research has consistently found, few STEM environments feel this way for minoritized youth. Instead, although experimentation and failure are both key to the scientific process, minoritized youth are routinely punished in STEM spaces for not knowing and for taking risks (King et al., 2023; McGee, 2021). To interrupt this trend, informal STEM programs should prioritize relationships and process over outcomes. To do so, programs should provide professional development to staff on inclusive pedagogy, which can prepare staff to build effective relationships with students and create safer environments for all learners. Staff should also model making mistakes and learning from those mistakes in front of students, thereby normalizing error and reflection as part of the learning process. Finally, staff should also intentionally design activities that embrace the utility of mistakes and failing in the learning process (Simpson & Maltese, 2017). One way to do so is to build drafting, feedback, and refinement stages into each activity, signaling to students that success requires iterative effort.

Finally, it is important to note that none of the participants enrolled in DBG because they were looking for an OST STEM program, nor were they required to participate in the STEAM Lab. Rather, students typically participate in DBG for its holistic, mentorship-based programming and they could choose to participate—or not—in the STEAM Lab activities. By embedding the STEM curriculum into the space, however, DBG has identified a method for broadening the STEM educational and career perspectives of its participants. Other non-STEM focused programs can do the same, weaving STEM concepts into the existing focus of their programs. For example, sports- or dance-focused OST programs can integrate lessons on the physics involved in movement, outdoor clubs can highlight how science knowledge can help someone survive in wilderness areas, and craft clubs can demonstrate the role of math in knitting or the chemical processes and

reactions that occur during cooking. In doing so, students can connect disciplines they may not initially be interested in (e.g., math, physics) to their passions (e.g., sports, cooking, or outdoor adventure), thereby understanding the value utility of STEM concepts and developing a sense of comfort with STEM topics in familiar, supportive environments.

## Conclusion

Considering that racially minoritized students continue to be underrepresented in STEM fields and that many of the jobs of the future will be in STEM, changes need to be made in how we prepare students for the future. OST programs have been identified as one possible underutilized source of preparation, capable of addressing some of the systemic barriers that have created discrepancies to this point. Results

of the current study confirm that assertion and reinforce the relevance of SCCT in designing effective programming. Indeed, results suggest that when OST spaces are intentionally structured to be supportive, inclusive of youth voice, and attentive to connecting STEM concepts to topics that are important to youth, they can provide essential contextual

support for the development of the STEM interests and efficacy that underlie STEM career involvement.

## References

- ACT. (2019). The condition of college and career readiness 2019. <https://www.act.org/content/act/en/research/reports/act-publications/condition-of-college-and-career-readiness-2019.html>.
- Afterschool Alliance. (2020). *America after 3PM: Demand grows, opportunity shrinks*. <https://afterschoolalliance.org/documents/AA3PM-2020/AA3PM-National-Report.pdf>.
- Afterschool Alliance. (2021). *STEM learning in afterschool on the rise, but barriers and inequities exist*. <https://afterschoolalliance.org/documents/AA3PM/AA3PM-STEM-Report-2021.pdf>.
- Alele, F., & Malau-Aduli, B. (2023). *An introduction to research methods for undergraduate health profession*

Students typically participate  
in DBG for its holistic,  
mentorship-based  
programming and they could  
choose to participate—or  
not—in the STEAM  
Lab activities.

- students. James Cook University. <https://doi.org/10.25120/fh2z-yva8>.
- Archer, L., DeWitt, J., Osborne, J., Dillon, J., Willis, B., & Wong, B. (2010). "Doing" science versus "being" a scientist: Examining 10/11-year-old schoolchildren's constructions of science through the lens of identity. *Science Education*, 94(4), 617–639. <https://doi.org/10.1002/sce.20399>.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37, 122–147. <https://doi.org/10.1037/0003-066X.37.2.122>.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Upper Saddle River, NJ: Prentice-Hall.
- Baran, E., Bilici, S. C., Mesutoglu, C., & Ocak, C. (2019). The impact of an out-of-school STEM education program on students' attitudes towards STEM and STEM careers. *School Science and Mathematics*, 119, 223–235. <https://doi.org/10.1111/ssm.12330>.
- Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. <https://doi.org/10.18637/jss.v067.i01>.
- Blanchard, M. R., Gutierrez, K. S., Swanson, K. J., & Collier, K. M. (2023). Why do students attend STEM clubs, what do they get out of it, and where are they heading? *Education Sciences*, 13(5), 480. <https://doi.org/10.3390/educsci13050480>.
- Bliese, P. D., Maltarich, M. A., & Hendricks, J. L. (2018). Back to basics with mixed-effects models: Nine take-away points. *Journal of Business and Psychology*, 33(1), 1–23. <https://doi.org/10.1007/s10869-017-9491-z>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. <https://doi.org/10.1191/1478088706qp063oa>.
- Case, A. S. (2019). The role of charismatic, transformational leadership in youth development program success. Poster presented at the 2019 American Psychological Association Conference, Chicago, IL.
- Case, A. S. (2020). "Doing our part": A case study of what motivates and enables Black family engagement in one afterschool program. *Journal of Youth Development*, 15(6), 44–69. <https://doi.org/10.5195/jyd.2020.887>.
- Case, A. S., & Christophe, N. K. (2019). Strategies for improving self-efficacy: A qualitative analysis of Detroit's Downtown Boxing Gym. *Journal of Youth Development*, 14(1), 165–181. <https://doi.org/10.5195/jyd.2019.699>.
- Case, A. S., Maldonado, S. A., & Hoxsey, A. (2022). Social change at the local level: A psychobiography of Khali Sweeney from Detroit's Downtown Boxing Gym. *Journal of Personality*, 97(1), 134–149. <https://doi.org/10.1111/jopy.12754>.
- Case, A. S., Solomon, K., Hauser, J., & Sweeney, K. (2025). Broadening the youth mental health ecosystem: A case study of DBG Detroit. *Journal of Prevention and Health Promotion*, 7(2), 234–258. <https://doi.org/10.1177/26320770251359600>.
- Castro, F. G., Kellison, J. G., Boyd, S. J., & Kopak, A. (2010). A methodology for conducting integrative mixed methods research and data analyses. *Journal of Mixed Methods Research*, 4(4), 342–360. <https://doi.org/10.1177/1558689810382916>.
- Change the Equation. (2017). Ending the double disadvantage: Ensuring STEM opportunities in our poorest schools. <https://www.ecs.org/wp-content/uploads/CTE-STEM-Desert-Brief-FINAL.pdf>.
- Cherng, H.-Y.S., Halpin, P.F., & Rodriguez, L.A. (2022). Teaching bias? Relations between teaching quality and classroom demographic composition. *American Journal of Education*, 128(2), 171–201. <https://doi.org/10.1086/717676>.
- Cole, D. & Espinoza, A. (2008). Examining the academic success of Latino students in science technology engineering and mathematics (STEM) majors. *Journal of College Student Development*, 49(4), 285–300. <https://doi.org/10.1353/csd.0.0018>.
- Creswell, J. W., Plano Clark, V. L., Gutmann, M. L., & Hanson, W. E. (2003). Advances in mixed methods research designs. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioral research* (pp. 209–240). Thousand Oaks, CA: SAGE.
- Dischino, M., DeLaura, J. A., Donnelly, J., Massa, N. M., & Hanes, F. (2011). Increasing the STEM pipeline through problem-based learning. *Proceedings of the 2011 IA7C-ASEE International Conference*. [https://ijme.us/cd\\_11/PDF/Paper%2027%20ENT%20203.pdf](https://ijme.us/cd_11/PDF/Paper%2027%20ENT%20203.pdf).
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods

- designs—principles and practices. *Health Services Research*, 48(6 Pt 2), 2134–2156. <https://doi.org/10.1111/1475-6773.12117>.
- Fink, L. D. (2013). Active learning. University Oklahoma Instructional Development Program. <https://commons.trincoll.edu/ctl/files/2013/08/Week-3-Active-Learning.pdf>.
- Flores, L. Y., Navarro, R. L., & Ali, S. R. (2017). The state of SCCT research in relation to social class: Future directions. *Journal of Career Assessment*, 25(1), 6–23. <https://doi.org/10.1177/1069072716658649>.
- Fouad, N. A., & Santana, M. C. (2017). SCCT and underrepresented populations in STEM fields: Moving the needle. *Journal of Career Assessment*, 25(1), 24–39. <https://doi.org/10.1177/1069072716658324>.
- Fouad, N. A., & Smith, P. L. (1996). A test of a social cognitive model for middle school students: Math and science. *Journal of Counseling Psychology*, 43, 338. <https://doi.org/10.1037/0022-0167.43.3.338>.
- Garriott, P. O., Flores, L. Y., Prabhakar, B., Mazzotta, E. C., Liskov, A. C., & Shapiro, J. E. (2014). Parental support and underrepresented students' math/science interests: The mediating role of learning experiences. *Journal of Career Assessment*, 22, 627–641. <https://doi.org/10.1177/1069072713514933>.
- Heeg, D. M., Smith, T., & Avraamidou, L. (2022). Children's experiences and self-identification with science in the context of an out-of-school STEM program. *EURASIA Journal of Mathematics, Science and Technology Education*, 18(4). <https://doi.org/10.29333/ejmste/11888>.
- Higgins, L. (2019, February 28). More Michigan high school students are graduating on time, but are they ready for college? *Chalkbeat*. <https://www.chalkbeat.org/posts/detroit/2019/02/28/more-michigan-high-school-students-are-graduating-on-time-but-are-they-ready-for-college/>.
- Hinojosa, L., Swisher, E., & Garneau, N. (2021). The organization of non-formal pathways into STEM: designing towards equity. *International Journal of Science Education*, 43(5), 737–759. <https://doi.org/10.1080/09500693.2021.1882010>.
- Hughes, R. M., Nzekwe, B., & Molyneaux, K. J. (2013). The single sex debate for girls in science: A comparison between two informal science programs on middle school students' STEM identity formation. *Research in Science Education*, 43, 1979–2007. <https://doi.org/10.1007/s11165-012-9345-7>.
- Hussar, B., Zhang, J., Hein, S., Wang, K., Roberts, A., Cui, J., Smith, M., Bullock Mann, F., Barmer, A., and Dilig, R. (2020). *The Condition of Education 2020 (NCES 2020-144)*. U.S. Department of Education. Washington, DC: National Center for Education Statistics. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2020144>.
- Kier, M. W., Blanchard, M. R., Osborne, J. W., & Albert, J. L. (2014). The development of the STEM Career Interest Survey (STEM-CIS). *Research in Science Education*, 44(3), 461–481. <https://doi.org/10.1007/s11165-013-9389-3>.
- King, G. P., Russo-Tait, T., & Andrews, T. C. (2023). Evading race: STEM faculty struggle to acknowledge racialized classroom events. *CBE—Life Sciences Education*, 22(1). <https://doi.org/10.1187/cbe.22-06-0104>.
- Krishnamurthi, A., Ballard, M., & Noam, G. G. (2014). Examining the impact of afterschool STEM programs: A paper commissioned by the Noyce Foundation. <https://files.eric.ed.gov/fulltext/ED546628.pdf>.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, 45(1), 79–122. <https://doi.org/10.1006/jvbe.1994.1027>.
- Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology*, 47(1), 36–49. <https://doi.org/10.1037/0022-0167.47.1.36>.
- Mau, W.-C., Chen, S.-J., & Lin, C.-C. (2019). Assessing high school students' STEM career interests using a social cognitive framework. *Education Sciences*, 9(2), 151. <https://doi.org/10.3390/educsci9020151>.
- McGee, E. O. (2021, February 11). Let's remake racially unsafe STEM educational spaces. *Higher Education Today*. <https://www.higheredtoday.org/2021/02/11/lets-remake-racially-unsafe-stem-educational-spaces/>.
- McNeish, D., & Kelley, K. (2019). Fixed effects models versus mixed effects models for clustered data: Reviewing the approaches, disentangling

- the differences, and making recommendations. *Psychological Methods*, 24(1), 20–35. <https://doi.org/10.1037/met0000182>.
- Mohd Shahali, E. H., Halim, L., Rasul, M. S., Osman, K., & Mohamad Arsad, N. (2018). Students' interest towards STEM: a longitudinal study. *Research in Science & Technological Education*, 37(1), 71–89. <https://doi.org/10.1080/02635143.2018.1489789>.
- Mohr-Schroeder, M. J., Jackson, C., Miller, M., Walcott, B., Little, D. L., Speler, L., Schooler, W., & Schroeder, D. C. (2014). Developing middle school students' interests in STEM via summer learning experiences: See Blue STEM Camp. *School Science & Mathematics*, 114(6), 291–301. <https://doi.org/10.1111/ssm.12079>.
- National Center for Education Statistics. (2015). *National Assessment of Educational Progress (NAEP), 2009, 2011, and 2015 Science Assessment*. U.S. Department of Education. [https://nces.ed.gov/programs/coe/pdf/Indicator\\_CNE/coe\\_cne\\_2017\\_05.pdf](https://nces.ed.gov/programs/coe/pdf/Indicator_CNE/coe_cne_2017_05.pdf).
- National Science Board. (2024). Talent is the treasure: Who are we leaving on the bench? National Science Foundation. <https://nsf-gov-resources.nsf.gov/files/nsb-talent-treasure-2024.pdf>.
- Olszewski-Kubilius, P., Steenbergen-Hu, S., Thomson, D., & Rosen, R. (2017). Minority achievement gaps in STEM: Findings of a longitudinal study of Project Excite. *Gifted Child Quarterly*, 61(1), 20–39. <https://doi.org/10.1177/0016986216673449>.
- Park-Taylor, J., Wing, H. M., Aladin, M., Burke, E. K., Park, J., & Martinez, B. Y. (2022). STEM pathways for Black and Latinx middle and high school students. *The Urban Review*, 54, 595–623. <https://doi.org/10.1007/s11256-021-00631-0>.
- Polat, A. (2025). Thematic analysis in qualitative research: Common pitfalls and practical insights for academic writing. *International Journal of Qualitative Methods*, 24. <https://doi.org/10.1177/16094069251372835>.
- Polman, J. L. & Miller, D. (2010). Changing stories: Trajectories of identification among African American youth in a science outreach apprenticeship. *American Journal of Educational Research*, 47(4), 878–918. <https://doi.org/10.3102/0002831210367513>.
- Renninger, K. A. (2007). Interest and motivation in non-formal science learning. Commissioned Paper for Learning Science in Non-formal Environments Committee. [https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse\\_080085.pdf](https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_080085.pdf).
- Roncoroni, J., Hernandez-Julian, R., Hendrix, T., & Whitaker, S. W. (2021). Breaking barriers: Evaluating a pilot STEM intervention for Latinx children of Spanish-speaking families. *Journal of Science Education and Technology*, 30(5), 719–731. <https://doi.org/10.1007/s10956-021-09914-3>.
- Simpson, A., & Maltese, A. D. (2017). “Failure is a major component of learning anything”: The role of failure in the development of STEM professionals. *Journal of Science Education and Technology*, 26, 223–237. <https://doi.org/10.1007/s10956-016-9674-9>.
- Smith, E. P., Witherspoon, D. P., Bhargava, S., & Bermudez, J. M. (2019). Cultural values and behavior among African American and European American children. *Journal of Child and Family Studies*, 28, 1236–1249. <https://doi.org/10.1007/s10826-019-01367-y>.
- Tamis-LeMonda, C. S., Way, N., Hughes, D., Yoshikawa, H., Kalman, R. K., & Niwa, E. Y. (2007). Parents' goals for children: The dynamic coexistence of individualism and collectivism in cultures and individuals. *Social Development*, 17(1), 183–209. <https://doi.org/10.1111/j.1467-9507.2007.00419.x>.
- Tanner, K. (2017, August 25). Opinion: Database: Search college enrollment rates by school or district. *Detroit Free Press*. <https://www.freep.com/story/opinion/contributors/raw-data/2017/08/25/database-search-college-enrollment-rates-school-district/597897001/>.
- Tomperi, P., Kvivesen, M., Manshadi, S., Uteng, S., Shestova, Y., Lyash, O., Lazareva, I., & Lyash, A. (2022). Investigation of STEM subject and career aspirations of lower secondary school students in the North Calotte region of Finland, Norway, and Russia. *Education Sciences*, 12(3), 192. <https://doi.org/10.3390/educsci12030192>.
- United States Department of Labor. (2021). Employment in STEM occupations. U.S. Bureau of Labor Statistics. <https://www.bls.gov/emp/tables/stem-employment.htm>.

Vossoughi, S., Hooper, P. K., & Escudé, M. (2016). Making through the lens of culture and power: Toward transformative visions for educational equity. *Harvard Educational Review*, 86(2), 206–232. <https://doi.org/10.17763/0017-8055.86.2.206>.

The White House. (2009, November 23). President Obama launches “Educate to Innovate” campaign for excellence in science, technology, engineering, & math education. <https://obamawhitehouse.archives.gov/the-press-office/president-obama-launches-educate-innovate-campaign-excellence-science-technology-en>.

Wright, W. (2006) Keep it in the ring: Using boxing in social group work with high-risk and offender youth to reduce violence. *Social Work with Groups*, 29(2–3), 149–174. [https://doi.org/10.1300/J009v29n02\\_11](https://doi.org/10.1300/J009v29n02_11).

Young, J., & Young, J. L. (2018). We can achieve if we receive: Examining the effects of out-of-school time activities on Black student achievement in mathematics. *Equity & Excellence in Education*, 51(2), 182–198. <https://doi.org/10.1080/10665684.2018.1506952>.

Young, J. L., Young, J. R., & Ford, D. Y. (2019). Culturally relevant STEM out-of-school time: A rationale to support gifted girls of color. *Roeper Review*, 41(1), 8–19. <https://doi.org/10.1080/02783193.2018.1553215>.



# Bridging the Translational Gap

## A Research-Practice Partnership in Equity-Focused Informal STEM Education

**Kristin Michod Gagnier, Megan C. Sharkey, Laura Holian, Melissa Kurman, Maya Heiland, & Steven J. Holochwost**

Informal science, technology, engineering, and mathematics (STEM) education includes learning that occurs outside formal school settings, such as in museums, science centers, afterschool programs, and other community initiatives (NRC, 2009).

A growing body of research highlights the critical role these informal experiences play in expanding participation in science, cultivating lifelong engagement, and strengthening scientific literacy (NRC, 2009; Falk & Dierking, 2010; Dierking et al., 2013; Stocklmayer et al., 2010; Sun, 2024). Experiences in these settings support authentic scientific practices, such as questioning, investigating, analyzing data, and considering the broader implications of findings, helping learners

build the skills needed to participate in science beyond the classroom (NRC, 2012). Informal education also

---

**KRISTIN MICHOD GAGNIER** is a senior research scientist with AnLar LLC and director of preschool development grant in the Division of Early Childhood at the Maryland State Department of Education.

**MEGAN C. SHARKEY**, research associate, and **LAURA HOLIAN**, research director, are with AnLar LLC.

**MELISSA KURMAN** is the senior manager of impact and evaluation at the University City Science Center. Previously senior director of STEM education at the University City Science Center.

**MAYA HEILAND** now serves as the director of apprenticeships and school-to-work at the Community College of Philadelphia.

**STEVEN J. HOLOCHWOST** is an associate professor in the Department of Psychology at Lehman College and the Graduate Center of the City University of New York.

advances equity by expanding access to meaningful STEM learning opportunities through programs that are culturally relevant, accessible, and designed to meet diverse needs, which supports identity development, motivation, and persistence (Bell et al., 2016; NASEM, 2018). These experiences can also help address inequities by intentionally expanding students' STEM social networks through mentoring, exposure to STEM professionals, and structured connections within informal learning environments, which in turn support broader participation in STEM (Saw, 2020). Partnerships with STEM professionals provide authentic, project-based experiences that mirror scientific practice, helping learners see science in everyday life and envision themselves in future STEM careers (Dabney et al., 2012).

Despite the potential promise of informal experiences, a persistent challenge in STEM education lies in the translational gap: How do we ensure that research-informed, equity-focused programs can effectively scale and sustain themselves within a complex STEM ecosystem? Too often, excellent programs fail to bridge the divide between research findings and on-the-ground practitioner knowledge (Joyce & Cartwright, 2020). The intentional creation of research–practice partnerships (RPPs) is therefore critical for generating and sustaining high-quality, impactful programs. The RPP presented here intentionally designs program structures, recruitment strategies, learning experiences, and research processes to expand access to meaningful participation, support identity development, and reduce barriers within the context of an informal STEM program.

We present a case study of the partnership model used in the Experiencing STEM FirstHand project, a collaboration between researchers at AnLar and the City University of New York and practitioners at the Philadelphia-based FirstHand™ program. We begin by situating the program within its local context as a reflection of broader systemic challenges and opportunities. We then describe how our RPP was intentionally structured around the five dimensions of RPP effectiveness (Henrick et al., 2017; 2023) needed for participatory evaluation and the ongoing refinement of program design and implementation.

Using examples from our work, we show how these dimensions were translated into concrete actions that strengthened implementation and evaluation. Summative findings from this project will be reported in a future article; our aim here is to offer an example for other teams engaged in partnership work and to illustrate how grounding activities in the five RPP dimensions can generate insights that drive improvement.

## Context and Rationale

Despite national efforts to diversify the STEM workforce, Black and Hispanic individuals remain persistently underrepresented (Fry et al., 2021; NASEM, 2023). Increasing diversity in STEM is both an equity issue and an innovation imperative, as a more inclusive workforce can reduce economic disparities while bringing new perspectives that drive creativity and discovery (Hong & Page, 2004; Page, 2025; Taylor, 2024). These inequities stem from long-standing gaps in access to educational opportunities across the STEM pipeline. National data show that schools serving mostly White students are more likely to offer advanced coursework and employ highly qualified teachers than schools serving a majority of Black or Hispanic students (U.S. Department of Education, 2025). As a result, many students are denied access to gatekeeper courses, high-quality instruction, and hands-on learning experiences that support entry into STEM fields. These disparities persist into higher education: Black and Hispanic students enter STEM majors at rates similar to their White peers but are significantly less likely to complete their programs, with introductory “gateway” courses playing a disproportionate role in attrition (Riegle-Crumb et al., 2019; Hatfield et al., 2022). These compounding inequities underscore the need for intentionally designed opportunities earlier in students' educational trajectories.

Philadelphia reflects many of these national patterns. Although research shows that racially and socioeconomically diverse schools benefit all students (The Century Foundation, 2019), segregation in Philadelphia remains high (Slaughter et al., 2016), as it does in many U.S. cities. The School District of Philadelphia serves a predominantly Black and

How do we ensure that research-informed, equity-focused programs can effectively scale and sustain themselves within a complex STEM ecosystem?

Hispanic student population, yet persistent inequities remain in access to rigorous coursework and hands-on STEM learning. For example, algebra, a key gateway to advanced mathematics and science, is offered in only 50 of the district's 195 K-8 schools (Mezzacappa, 2023). Achievement gaps further reflect unequal opportunity: In 2024, only 26.1% of economically disadvantaged eighth-grade students scored proficient in science on the Pennsylvania System of School Assessment, compared to 31% of all district eighth graders, and only 16% met proficiency on the statewide high school biology exam required for graduation compared to 21% of all district students. Access to advanced coursework is also uneven: White students are nearly three times more likely than Black and Hispanic students to take advanced placement (AP) courses (Bloomquist & Rosenfeld, 2021), and 27% of high schools offer no AP courses (NCES, 2024). These gaps limit early opportunities for authentic, inquiry-based STEM learning.

At the same time, Philadelphia is a major hub of STEM innovation, with world-class universities, hospitals, and a rapidly growing life sciences sector (Vey et al., 2017; Burden et al., 2025). Demand for STEM talent continues to grow, yet many of the city's youth, particularly those from historically underserved communities, have limited pathways to these opportunities. This contrast reflects broader national challenges, in which inequities in access persist alongside expanding economic opportunity. Recent research suggests that addressing access alone is insufficient; meaningful participation also depends on whether students experience STEM as relevant, inclusive, and connected to their identities (Zhao et al., 2022; YESTEM, 2021). Constructs such as belonging, identity, and representation, including the relatability of role models, have been shown to play a central role in shaping engagement and persistence (Aish et al., 2018; Edelen et al., 2024). In a city like Philadelphia, where opportunity and inequity coexist, these findings underscore the importance of designing STEM experiences that not only expand access but also support how students see themselves within STEM and their potential pathways into the local innovation economy.

### Expanding access must be coupled with attention to identity, belonging, and representation to support sustained engagement in STEM.

Taken together, this literature suggests that expanding access must be coupled with attention to identity, belonging, and representation to support sustained engagement in STEM. Bridging these gaps requires not only meaningful STEM experiences but also approaches that align research, practice, and local context to support continuous improvement and responsiveness to community needs. RPPs are particularly well suited to this work, as they enable researchers and practitioners to collaboratively design, study, and refine programs in real-world settings. The FirstHand program was developed within this environment to expand access to authentic STEM learning and support sustained engagement among students who have historically had limited opportunities to participate in such experiences (DeWitt et al., 2025). The Experiencing STEM FirstHand project extends this work through an RPP intentionally structured around established dimensions of partnership effectiveness, integrating evaluation with implementation to generate actionable insights and support ongoing program refinement.

### The FirstHand Program

Launched in 2014, FirstHand was created to address systemic barriers that limit access to meaningful STEM experiences for students in Philadelphia schools by providing no-cost, high-quality opportunities to engage in authentic scientific practice. Its mission is to offer hands-on, mentored STEM experiences that spark curiosity, strengthen identity, and help students envision themselves as future scientists, engineers, and innovators.

The program serves students from historically underresourced Philadelphia schools. School partners are selected on the basis of student need, proximity to the FirstHand lab, and level of resource gaps, with every participating school serving a student population that is 100% economically disadvantaged. Many of these schools face significant structural constraints. According to the district's school profiles and facilities data (<https://schoolprofiles.philasd.org>), most partner schools are rated as "poor" or "unsatisfactory" in building condition, and only one is rated as "fair" for supporting teaching and learning. These conditions

reflect broader resource inequities that also shape access to STEM learning opportunities, including recent district proposals to close or relocate multiple schools, including some FirstHand partners.

The program works closely with each school to develop a recruitment plan best suited to its students. For example, some schools send their entire eighth-grade class, whereas others select a subset of students who may not thrive in the classroom but who the schools believe would benefit from the program. This ensures that the program does not overlook students based solely on academic merit and offers an opportunity for all students to participate at the school's discretion. The program reviews participation data annually to ensure that participants mirror the communities that FirstHand intends to serve. The participant population has historically been 83% Black, 6% Hispanic, and 6% multiracial, with approximately 9% of students speaking a language other than English at home.

To address opportunity gaps, the FirstHand program provides access to high-quality STEM programming and professional-grade lab environments that are not available in many partner schools. The program follows a co-curricular, place-based model that integrates mentoring, inquiry-driven learning, and community engagement. It brings together students from Philadelphia schools, local STEM professionals, and program staff in a professional laboratory space located in uCity Square, an innovation district in West Philadelphia. This local embedding connects students to nearby industries and careers, helping them see STEM pathways as part of their own communities.

The Experiencing STEM FirstHand project focuses on evaluating the middle school programming delivered in partnership with these schools. Students participate in 10-week sessions, attending weekly two-hour experiences in small groups of approximately 14 students, typically accompanied by a teacher. During sessions, students engage in hands-on investigations and labs while receiving mentorship from working STEM professionals who provide career exposure and guidance. The curriculum includes six

thematic tracks aligned with school science priorities and is informed by local industry contexts and regional STEM employers. For example, in “DNA Selfie,” students explore DNA structure and function using microscopy and gel electrophoresis, tools used in biotechnology settings. In “Polymer Play,” students design and test biodegradable materials while engaging in engineering design practices.

Each week combines guided instruction with collaborative project work, emphasizing inquiry-based learning and real-world relevance. The program culminates in a public showcase in which students present their projects, explain the problems they addressed, and share their work with mentors, educators, families, and caregivers. These experiences support students in developing communication skills, scientific reasoning, and STEM identity by connecting scientific practice to personally and socially meaningful contexts.

### **Experiencing STEM FirstHand: A Case Study of Research–Practice Partnerships**

Early in its journey, the FirstHand program recognized the value of collaborating with researchers to strengthen program design and understand program impact. Over the past 11 years, the program has collected multiple types of data to learn from student experiences; its original research collaborator remains a core partner, providing continuity, shared learning, and deep insight into the program's evolution. In 2021, the Experiencing STEM FirstHand project was awarded an Early-phase Education Innovation and Research (EIR) grant from the U.S. Department of Education, enabling a deeper examination of whether the program is delivered as designed, how it can be

improved, and what benefits it offers participants. This kind of in-depth, multifaceted inquiry depends on a strong RPP—a long-term, mutually beneficial collaboration that generates research on problems of practice and promotes the use of rigorous evidence (Coburn et al., 2013). This collaborative approach is aligned with calls for culturally

responsive and participatory forms of evaluation that center on participant experiences and local

**During sessions, students  
engage in hands-on  
investigations and labs while  
receiving mentorship from  
working STEM professionals  
who provide career exposure  
and guidance.**

community goals, rather than focusing solely on measuring intervention outcomes (NASEM, 2026).

In forming our RPP, we invested in building a genuine partnership through trust building, shared decision making, and co-design of every stage of the research process, from refining a logic model to agreeing on and revising data collection protocols. Our work was guided by the five key dimensions of an effective RPP (Henrick et al., 2017; 2023): (1) cultivating trust and relationships; (2) engaging in inclusive research to address local needs; (3) supporting practice in making progress toward program goals; (4) engaging with the broader field to improve practices, systems, and inquiry; and (5) fostering ongoing learning and developing infrastructure for partnering. In this article, we use specific examples to describe how we adhered to each dimension to strengthen the program, inform continuous improvement, and advance equity-focused STEM learning.

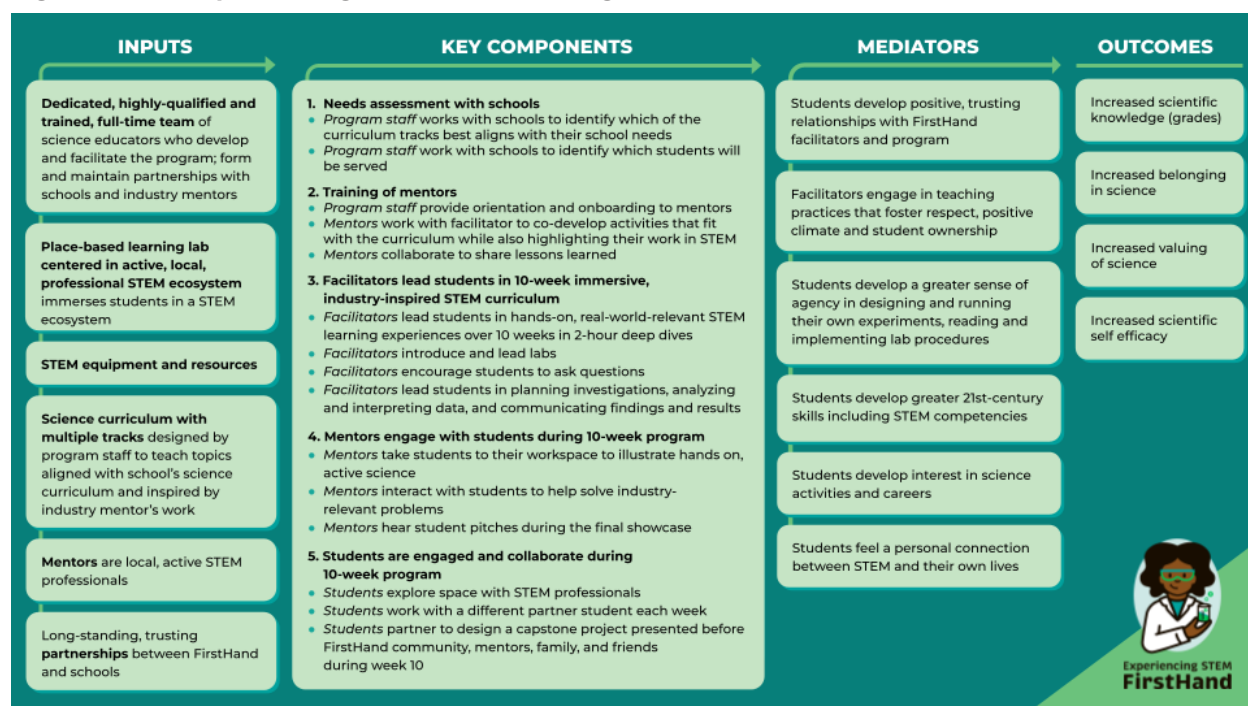
### Dimension 1: Cultivating Trust and Relationships

We built trust and strong relationships through three interconnected commitments. First, we developed a *shared vision* of providing equitable science experiences for students, beginning with the collaborative creation of a logic model (Figure 1) that outlined the program's

key components, activities, and intended outcomes. This work clarified our goals and established a foundation for using data to continually refine the program. Second, we committed to a *sustainable partnership* grounded in mutual trust, respect, and the understanding that each team member's expertise is essential to our collective aims. Third, we emphasized *transparency and consistent communication* through regular check-ins and open dialogue to ensure that all voices were heard. Co-developing the logic model allowed us to articulate a shared vision, build understanding across roles, and guide our evaluation work.

The logic model shown in Figure 1 presents the project's vision across four levels. *Inputs* are the resources and partnerships that make the program possible. *Key components* are the core activities driving implementation: (1) needs assessment with schools; (2) mentor training; (3) facilitator-led curriculum; (4) mentor engagement; and (5) student engagement. *Mediators* are the changes expected from program participation, such as relationships, agency, and skill development, showing how key components lead to outcomes. Finally, *outcomes* are the ultimate goals of participation in FirstHand. Each partner's expertise shaped the logic model, reinforcing shared ownership and helping us establish a common language and a culture of transparent communication that continues to support our work.

Figure 1. The Experiencing STEM FirstHand logic model



## **Dimension 2: Implementing Inclusive and Rigorous Research to Understand Local Needs**

*Mission and RPP Approach:* Within our RPP, research questions, design, and interpretation are co-developed with those directly involved in and affected by the program, including FirstHand staff, school partners, mentors, and students. This inclusive approach centers on participant experiences, reflects diverse perspectives, and produces findings that are meaningful and usable in practice.

*Identifying Local Needs:* Local needs were identified through ongoing engagement with partners, including early conversations with teachers, administrators, and local businesses; analysis of participation and outcome data; and continuous feedback from educators, mentors, and students. Across these inputs, three key needs emerged:

1. Expanding equitable access to high-quality STEM learning opportunities, particularly for students historically underrepresented in STEM
2. Strengthening STEM confidence, belonging, and identity
3. Ensuring that STEM experiences are relevant to students' lives and local contexts.

*Evaluation Design and Framing:* The evaluation is designed to reflect these locally identified needs and priorities. Consistent with our RPP approach, research questions, measures, and methods were co-developed to ensure relevance and inclusivity. This includes attention to both academic outcomes and equity-centered constructs such as STEM identity, belonging, and engagement. The evaluation integrates quantitative and qualitative methods to capture both measurable outcomes and the lived experiences of participants.

*Rigorous Impact Evaluation:* To generate credible evidence of program effectiveness, the evaluation includes a multi-cohort randomized controlled trial (RCT) with a delayed-treatment design. This approach allows the partnership to estimate the causal impact of participation on scientific knowledge, science self-efficacy, valuing of science, and belonging. Scientific knowledge is measured using district science

grades. A validated suite of measures is used to assess science self-efficacy, valuing of science, and belonging in science (Panorama Education, 2024).

While the summative evaluation is ongoing, formative insights and lessons learned from implementation are shared publicly through the project website (<https://stemfirsthand.anlar.com/>), providing timely access to emerging learning for practitioners, partners, and the broader informal STEM education field.

*Qualitative and Embedded Approaches:* Qualitative methods, including student focus groups, interviews, and observations, complement the quantitative measures by capturing how students experience the program and how participation influences their confidence, interest, and identity. These approaches center student voices by allowing participants to describe their experiences in their own words, providing critical context for understanding program impact. To support high-quality, contextually grounded data collection, local research team members are embedded in the program and attend sessions regularly. Their consistent presence enables relationship building with students, staff, and partners, fostering trust and encouraging authentic, in-depth student sharing. Integrating qualitative and quantitative data strengthens the depth, validity, and contextual relevance of the findings while ensuring that participant perspectives directly inform program refinement.

**Consistent with our RPP approach, research questions, measures, and methods were co-developed to ensure relevance and inclusivity.**

## **Dimension 3: Supporting Progress Toward Program Goals**

Whereas Dimension 2 describes how the evaluation was designed, Dimension 3 focuses on how the resulting data are used. The partnership organized this work around three questions:

### **1. Implementation fidelity: Is the FirstHand program being delivered as designed?**

The FirstHand program was intentionally designed to meet locally identified needs. Evaluating implementation fidelity ensures that program activities remain aligned with these goals. The research team worked with FirstHand staff to define indicators for each core component and establish thresholds for adequate implementation.

- *Program Observations:* Structured observations are conducted using the STEM Program Quality Assessment (STEM PQA; Smith, 2012), an adaptation of the Youth Program Quality Assessment for informal STEM settings.
- *School Leader Conversation:* Semistructured interviews with principals and school liaisons examine how schools align program participation with local priorities and select students, while also providing insight into broader contextual factors such as curriculum shifts and district expectations.
- *Mentor Preparation and Development:* Mentor training is assessed through training observations, staff discussions, and an annual mentor survey, capturing how mentors are prepared to engage students and connect learning to authentic STEM practices.

Fidelity data are tracked across program iterations and schools, summarized, and shared with the FirstHand team. Regular review of these data supports alignment with program goals and informs ongoing refinement.

## 2. Continuous improvement: How can the program be improved?

Formative evaluation provides actionable insights to support continuous improvement and ensure that the program remains responsive to local needs. Data collection strategies were collaboratively developed with input from staff, school partners, and participants. Multiple data sources have been used to identify strengths, challenges, and opportunities for refinement:

- *Program Quality Assessment:* In addition to supporting fidelity, the STEM PQA assesses program quality across four domains: Supportive Environment, Interaction, Engagement, and STEM Skills. Findings are shared annually to highlight strengths and guide improvements.
- *Stakeholder Feedback:*
  - Student focus groups explore experiences of belonging, confidence, and interest, as well as suggestions for improvement.
  - Facilitator interviews examine onboarding, coaching, and implementation challenges.

- Mentor surveys and interviews capture engagement strategies and perceived benefits.
- Industry partner interviews assess participation value and conditions for sustained engagement.
- Informal conversations with teachers, caregivers, and principals provide additional perspectives on program quality and classroom relevance.

To support partners and strengthen inclusivity, the team shares customized participation snapshots with each school after every program cycle. These summaries include student quotes, participation metrics, and engagement data, making findings meaningful and relevant to each school's context and supporting shared decision making.

To support partners and strengthen inclusivity, the team shares customized participation snapshots with each school after every program cycle.

## 3. What are the benefits of participation?

The RCT evaluation is designed to measure the impact of the program on student science grades as well as student beliefs and attitudes. The RPP is also working to continue data collection to observe students into high school and postsecondary experiences. The short-term impact study shows the effect of the program on immediate changes in students. In addition to studying the quantitative data, the evaluation team talks to students and teachers to understand their perspectives on how they see the program changing student experiences.

Findings from both the impact evaluation and qualitative data are used to inform program refinement, strengthen mentorship, and align implementation with FirstHand's goals. Quantitative results provide evidence of program effectiveness, whereas qualitative insights help explain how and why outcomes occur.

## Dimension 4: Engaging the Broader Field to Strengthen Practices, Systems, and Inquiry

To extend the impact of our work beyond the Experiencing STEM FirstHand project, we prioritize sharing knowledge and processes—including findings, strategies, frameworks, and tools—with external audiences. This engagement is reciprocal, involving listening, learning, and adapting approaches to strengthen practice across settings. We actively engage the Philadelphia community through shared events, conferences, and partnerships. For example,

the project team organized a symposium at the American Educational Research Association's annual meeting to explore how Philadelphia programs aimed at diversifying the STEM workforce pipeline evaluate their work. We also connect with informal science education networks, workforce collaboratives, afterschool alliances, educators, parents, and caregivers.

Locally, FirstHand contributes to Philadelphia's STEM ecosystem by collaborating with organizations to expand high-quality STEM opportunities. The School District of Philadelphia's (SDP's) Office of Strategic Partnerships hosted student, staff, and partner workgroups to co-develop an Enrichment Theory of Change, aligning goals, measures, and strategies across district initiatives. FirstHand staff worked with representatives from 19 organizations to inform this process and shared the STEM PQA as a formative tool. The resulting theory of change (SDP, 2024) recommends the PQA to strengthen quality improvement across district programs, illustrating how partnership and knowledge exchange can drive broader systems change. Insights from this RPP also inform classroom practice. Teachers who attend FirstHand with their students report increased confidence with lab-based instruction and regularly apply FirstHand strategies, such as end-of-class reflections, to enhance engagement and deepen learning. These adaptations help integrate FirstHand's approach into the city's educational ecosystem.

Beyond Philadelphia, FirstHand's program model informs national practice. The program advised on a replication at Charlotte, North Carolina's innovation district, The Pearl. FirstHand's industry-informed, lab-based STEM programming was adapted to Charlotte's ecosystem using lessons from the Experiencing STEM FirstHand project, drawing particularly on the logic model. Because The Pearl and uCity Square share a common developer, Wexford Science & Technology, this collaboration also offers potential pathways for scaling the model to other innovation districts.

FirstHand contributes to Philadelphia's STEM ecosystem by collaborating with organizations to expand high-quality STEM opportunities.

### **Dimension 5: Fostering Ongoing Learning and Developing Infrastructure for Partnership**

Our aim is for this RPP to continue beyond the EIR grant; we have dedicated time and resources to fostering learning among all team members and building a strong partnership infrastructure. A strong RPP focuses not only on generating research findings but also on empowering practitioners to sustain improvement and evidence-informed practice after the research team steps back.

At the *individual level*, we build program staff capacity and support ongoing professional development with a focus on sustainability. Facilitators are trained on the STEM PQA to set facilitation goals and strengthen practice, equipping them to continue cycles of inquiry independently and fostering a culture of reflective decision making beyond the

funded project. At the *program level*, collaboration and formative data have driven tangible improvements. The student lab notebook was redesigned with embedded reflection prompts to better capture student thinking and feedback, and facilitators now more explicitly connect lab activities to real-world STEM applications and career pathways.

At the *partnership level*, we have established routines and systems to support collaboration and continuous improvement, including structured weekly meetings, standard data processes, clearly defined roles, and expectations for communication and participation. Annual check-ins focus on partnership health, revisiting the shared vision, reflecting on successes, and identifying growth opportunities. These discussions emphasize sustainability and scaling, exploring how program practices, research findings, and partnership models can be maintained and adapted to other contexts. The team also regularly evaluates future opportunities for alignment with program and research priorities.

### **From Partnership to Practice: Lessons Learned from Our RPP Journey**

Our collaboration has generated a wealth of practical insights about what it takes to build, sustain, and

learn from an RPP. These lessons extend beyond our specific context and speak to the everyday realities of conducting inclusive, improvement-oriented research that meets local needs and advances broader educational goals. Several key lessons have shaped how we think about partnership, evaluation, and the role of research in driving meaningful change.

**Lesson 1: Strong partnerships start before research begins.** A successful RPP is built on trust, shared purpose, and collaboration, which must be cultivated before data collection begins. Our partnership's strength came from relationships and mutual understanding established early. Investing time to learn program priorities, understand contextual pressures, and collaboratively shape research questions ensured that the research was done *with* schools, not *to* them. Clarifying roles, aligning goals, and establishing communication routines—such as regular check-ins, shared planning documents, and transparent decision making—created processes that respected practitioners' time and expertise.

**Lesson 2: Formative evaluation fuels continuous improvement.** Formative evaluation is valuable at every stage of a program's life cycle. Studying implementation through an improvement-oriented lens (Marwell & Mosley, 2025) provides essential insights for growth, whether a program is new or established. In the Experiencing STEM FirstHand project, formative evaluation fostered ongoing relationships between researchers and practitioners, creating immediate value even before summative results were available. It also strengthened the program's capacity for continuous quality improvement, cultivating a culture of reflective practice and data-informed decision making. Over time, these habits become self-sustaining, enabling staff to conduct their own inquiry cycles, test small changes, and refine practice based on emerging evidence.

**Lesson 3: Enter RCTs with a learning orientation and clear expectations.** RCTs can provide powerful evidence, but they require significant capacity, stability, and clarity of purpose. Programs should assess whether this approach fits their development stage and organizational readiness by asking the following:

Investing time to learn program priorities, understand contextual pressures, and collaboratively shape research questions ensured that the research was done with schools, not to them.

1. *Does your organization have the capacity to conduct an RCT and to learn from it?* RCTs are expensive, complex, and time intensive (Marwell and Mosley, 2025); therefore, only organizations with strong infrastructure, staffing, and support systems can typically manage the demands of a full trial. Programs must be prepared to implement the model consistently across participants and sites, with core components clearly defined and operationalized in the protocol. Reliable delivery requires systems to monitor fidelity, track deviations, and provide feedback, supported by staff training, rehearsal of procedures, and iterative testing to ensure consistent implementation under real-world conditions. RCT readiness also requires a learning orientation. Entering an RCT means assuming that positive effects may not emerge and focusing instead on whether the study is measuring the right outcomes at the right time and whether participants interpret items as intended. Embedding early cognitive interviews and pilot testing helps ensure that instruments are valid, meaningful, and aligned with the program's logic model. A flexible, learning-focused stance, rather than a rigid "RCT or bust" approach, ensures that, regardless of effect size, the RCT generates actionable insights that strengthen the program.

2. *How will the program adapt and maintain fidelity during the RCT and manage service capacity?* Programs evolve naturally, but in an RCT, mid-course changes can undermine the ability to attribute outcomes to the intervention. In this project, we reduced burden through clear, proactive communication, including concise infographics outlining data collection timelines, instruments, and time commitments. We also remained responsive to partner feedback. When pre-testing proved too disruptive, we shifted to a post-test-only design, preserving research goals while reducing administrative strain.

**Lesson 4: Rethink what it means to scale.** Scaling is often framed as replicating a model in new contexts, but it can also involve extending a program's influence through practices, tools, or insights that inform other initiatives. Programs benefit

from planning for scale early by documenting core components, identifying adaptable elements, and considering how the work might extend beyond its original setting. Framing scaling as the diffusion of learning rather than duplication of form allows programs to pursue broader impact while remaining responsive to local needs.

Drawing on Coburn (2003), scale can be understood as multidimensional: spread into new contexts without requiring exact replication; depth of change in practice among adopters; a shift in ownership from external to local actors; and sustainability beyond initial funding. For example, the resulting program of the Charlotte replication efforts (described in Dimension 4) focuses on healthcare, whereas FirstHand in Philadelphia emphasizes biotechnology. In both cases, core components remain visible but are tailored to local priorities and opportunities. Together, these dimensions emphasize that scaling is not just about growth, but also about how programs are taken up, adapted, and sustained across contexts.

***Lesson 5: Immersed local researchers are foundational for trust and actionable data.*** Recruiting, developing, and retaining qualified staff for long-term, embedded research roles can be difficult, particularly in out-of-school time contexts where staffing instability is well documented (Brooks, 2025). These challenges were present in our work as well, requiring ongoing attention to hiring, support, and continuity.

Our experience suggests that one critical strategy for navigating these challenges is to invest deeply in partnerships and relationship building. The decision to hire local research team members who were physically present and immersed in the program's daily ecosystem was foundational. By showing up consistently at every program session, researchers moved beyond the role of external observers to become known and trusted members of the community. This relational presence not only strengthened data collection but also contributed to staff retention. This aligns with research showing that afterschool educators are motivated to stay when they experience strong relationships and a sense of impact (Moroney et al., 2025). In our context, investing in relationships with students, staff, and partners helped foster that

sense of purpose and belonging, supporting stability within the research team and data quality.

## Conclusion

The Experiencing STEM FirstHand project illustrates the potential of an RPP designed to advance equitable learning in informal STEM education while also extending what RPPs can contribute methodologically and structurally. Unlike many prior RPP case studies in informal STEM, this partnership integrates a multi-cohort RCT in a responsive, practice-embedded design, pairing causal inference with continuous formative feedback. By combining these elements, the project expands students' access to meaningful STEM experiences while demonstrating how RPPs can simultaneously support rigorous impact evaluation, embedded practice-based learning, and adaptive implementation at scale.

As the project expands within Philadelphia and adapts to new contexts, the principles guiding this RPP continue to shape its evolution. We hope these lessons offer a model for how partnerships can integrate embedded research roles, causal evaluation designs, and context-responsive scaling to both improve practice and contribute new methodological approaches for the field of informal STEM education.

## Acknowledgments

This work was funded by a grant from the U.S. Department of Education, S411C210055. The contents were developed under a grant from the U.S. Department of Education, Education Innovation and Research (EIR) Program. However, those contents do not necessarily represent the policy of the U.S. Department of Education; the reader should not assume endorsement by the federal government.

This work would not have been possible without the extraordinary dedication of countless individuals across Philadelphia. Our deepest gratitude goes first and foremost to the students and families. Your participation is at the heart of this effort, and none of this would have been possible without you. We extend sincere thanks to the School District of Philadelphia for its commitment to providing high-quality, hands-on educational experiences and to our partner schools

Framing scaling as the diffusion of learning rather than duplication of form allows programs to pursue broader impact while remaining responsive to local needs.

for their thoughtful collaboration. We are especially grateful to the FirstHand facilitators and leadership, as well as to the many mentors and industry professionals who generously volunteered their time and expertise. The collective dedication of each of these partners to supporting Philadelphia's youth has been essential to this work.

## References

- Aish, N., Asare, P., & Miskioğlu, E. E. (2018). People like me: Providing relatable and realistic role models for underrepresented minorities in STEM to increase their motivation and likelihood of success. In *2018 IEEE Integrated STEM Education Conference (ISEC)*, pp. 83–89. IEEE. [https://digitalcommons.bucknell.edu/cgi/viewcontent.cgi?article=1057&context=fac\\_conf](https://digitalcommons.bucknell.edu/cgi/viewcontent.cgi?article=1057&context=fac_conf).
- Bell, J., Falk, J., Hughes, R., Hunt, G., Parrish, J., Ruffin, M., Sacco, K., & Troxel, G. (2016). Informal STEM education: Resources for outreach, engagement and broader impacts. Center for Advancement of Informal Science Education (CAISE). [https://informalscience.org/wp-content/uploads/2019/02/CAISE\\_Broader\\_Impacts\\_Report\\_2016\\_0.pdf](https://informalscience.org/wp-content/uploads/2019/02/CAISE_Broader_Impacts_Report_2016_0.pdf).
- Bloomquist, S., & Rosenfeld, M. (2021, September 7). Philadelphia area schools see racial disparities in AP enrollment. 6 ABC (Action News). <https://6abc.com/post/data-investigation-schools-educational-inequity-advanced-coursework/10990411>.
- Brooks, L. (2025, September 29). New report explores how we can support and grow the afterschool STEM workforce. Afterschool Alliance. [https://www.afterschoolalliance.org/afterschoolSnack/New-report-explores-how-we-can-support-and-grow-the-afterschool\\_09-29-2025.cfm](https://www.afterschoolalliance.org/afterschoolSnack/New-report-explores-how-we-can-support-and-grow-the-afterschool_09-29-2025.cfm).
- Burden, D., Cole, C., Fetterman, J., Hatfield, C., Holland, S., & Myers, J. (2024). Life sciences report 2024. Colliers. <https://www.colliers.com/en/research/nrep-life-sciences-report-2024>.
- The Century Foundation. (2019). The benefits of socioeconomically and racially integrated schools and classrooms. [https://production-tcf.imgix.net/app/uploads/2016/02/26171529/Factsheet\\_Benefits\\_FinalPDF.pdf](https://production-tcf.imgix.net/app/uploads/2016/02/26171529/Factsheet_Benefits_FinalPDF.pdf).
- Coburn, C. E. (2003). Rethinking scale: Moving beyond numbers to deep and lasting change. *Educational Researcher*, 32(6), 3–12. <https://doi.org/10.3102/0013189X032006003>.
- Coburn, C. E., Penuel, W. R., & Geil, K. E. (2013). Research–practice partnerships: A strategy for leveraging research for educational improvement in school districts. William T. Grant Foundation. <https://wtgrantfoundation.org/wp-content/uploads/2014/02/Research-Practice-Partnerships-at-the-District-Level.pdf>.
- Dabney, K. P., Tai, R. H., Almarode, J. T., Miller-Friedmann, J. L., Sonnert, G., Sadler, P. M., & Hazari, Z. (2012). Out-of-school time science activities and their association with career interest in STEM. *International Journal of Science Education, Part B*, 2(1), 63–79. <https://doi.org/10.1080/21548455.2011.629455>.
- DeWitt, J., Godec, S., Watson, E., Archer, L., & Moote, J. (2025). Who participates in informal science learning experiences? Analysis of data from six surveys of a cohort in England from age 10–22 years. *International Journal of Science Education, Part B*, 15(4), 612–629. <https://doi.org/10.1080/21548455.2025.2462798>.
- Dierking, L. D., Falk, J. H., & Storksdieck, M. (2013). Learning from neighboring fields: Conceptualizing outcomes of environmental education within the framework of free-choice learning experiences. In *International handbook of research on environmental education* (R.B. Stevenson, M. Brody, J. Dillon, A. E. J. Wals, eds.), pp. 359–366. Routledge.
- Edelen, D., Cook, K., Tripp, L. O., Jackson, C., Bush, S. B., Mohr-Schroeder, M. J., Schroeder, D. C., Roberts, T., Maiorca, C., Ivy, J., Burton, M., & Perrin, A. (2024). “No, this is not my boyfriend’s computer”: Elevating the voices of youth in STEM education research leveraging photo-elicitation. *Journal for STEM Education Research*, 7(3), 444–462. <https://doi.org/10.1007/s41979-024-00118-z>.
- Falk, J., & Dierking, L. (2010). The 95 percent solution. *American Scientist*, 98(6), 486. <https://doi.org/10.1511/2010.87.486>.
- Fetterman, D. M. (2001). The transformation of evaluation into a collaboration: A vision of evaluation in the 21st century. *American Journal*

of *Evaluation*, 22(3), 381–385. <https://doi.org/10.1177/109821400102200315>.

Fry, R., Kennedy, B., & Funk, C. (2021). STEM jobs see uneven progress in increasing gender, racial and ethnic diversity. Pew Research Center. [https://www.pewresearch.org/social-trends/2021/04/01/stem-jobs-see-uneven-progress-in-increasing-gender-racial-and-ethnic-diversity/?gad\\_source=1&gad\\_campaignid=22378837192&gbraid=0AAAAA-ddO9HF\\_99Doi\\_2FxDinyhoef3R&gclid=CjwKCAjwwpDQBhAuEiwAa-4WowDLnmKxxng1fZJn\\_3l1basQQdZhxxX4MvV3s0uch8Q\\_rz9uwMpLwhoC6P4QAvD\\_BwE](https://www.pewresearch.org/social-trends/2021/04/01/stem-jobs-see-uneven-progress-in-increasing-gender-racial-and-ethnic-diversity/?gad_source=1&gad_campaignid=22378837192&gbraid=0AAAAA-ddO9HF_99Doi_2FxDinyhoef3R&gclid=CjwKCAjwwpDQBhAuEiwAa-4WowDLnmKxxng1fZJn_3l1basQQdZhxxX4MvV3s0uch8Q_rz9uwMpLwhoC6P4QAvD_BwE).

Hatfield, N., Brown, N., & Topaz, C. M. (2022). Do introductory courses disproportionately drive minoritized students out of STEM pathways?. *PNAS Nexus*, 1(4), pgac167. <https://doi.org/10.1093/pnasnexus/pgac167>.

Henrick, E. C., Cobb, P., Penuel, W. R., Jackson, K., & Clark, T. (2017). Assessing research-practice partnerships: Five dimensions of effectiveness. William T. Grant Foundation. <https://rpp.wtgrantfoundation.org/wp-content/uploads/2019/09/Assessing-Research-Practice-Partnerships.pdf>.

Henrick, E., Farrell, C. C., Singleton, C., Resnick, A. F., Penuel, W. R., Arce-Trigatti, P., Schmidt, D., Sexton, S., Stamatis, K., & Wellberg, S. (2023). Indicators of research-practice partnership health and effectiveness: Updating the five dimensions framework. National Center for Research in Policy and Practice and National Network of Education Research-Practice Partnerships. <https://doi.org/10.17605/OSF.IO/YVGCN>.

Hong, L., & Page, S. E. (2004). Groups of diverse problem solvers can outperform groups of high-ability problem solvers. *Proceedings of the National Academy of Sciences*, 101(46), 16385–16389. <https://doi.org/10.1073/pnas.0403723101>.

Joyce, K. E., & Cartwright, N. (2020). Bridging the gap between research and practice: Predicting what will work locally. *American Educational Research Journal*, 57(3), 1045–1082. <https://doi.org/10.3102/0002831219866687>.

Marwell, N. P., & Mosley, J. E. (2025). The nonprofit sector has an RCT problem. *Stanford Social Innovation Review*, 23, 5867. <https://doi.org/10.48558/Y8Z0-8264>.

Mezzacappa, D. (2023, November 13). Philly's premier high school requires 8th grade algebra

for admission. Many kids can't take it. Chalkbeat (Philadelphia). <https://www.chalkbeat.org/philadelphia/2023/11/13/eighth-grade-algebraaccess-equity-masterman>.

Moroney, D., Brown, M. E. M., Diffenderffer, A. E., Vasudevan, D. S., Richter, J. Y., Carroll, R., Syvertsen, A. K., & Tasayco Prado, G. N. (2025). Power of Us: The youth fields workforce findings. American Institutes for Research; Wallace Foundation. <https://doi.org/10.59656/YD-G3634.001>.

National Academies of Sciences, Engineering, and Medicine. (2023). Advancing anti-racism, diversity, equity, and inclusion in STEMM organizations: Beyond broadening participation. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26803>.

National Academies of Sciences, Engineering, and Medicine. (2018). Learning through citizen science: Enhancing opportunities by design, p. 25183. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25183>.

National Academies of Sciences, Engineering, and Medicine. (2026). The status of informal science and engineering education: Proceedings of a convocation. Washington, DC: The National Academies Press. <https://www.nationalacademies.org/read/29291>.

National Center for Education Statistics. (2024, March 19). *A majority of grade 9–12 public schools rate themselves favorably on preparing students for college*. Institute of Education Sciences, U.S. Department of Education. <https://ies.ed.gov/learn/press-release/majority-grade-9-12-public-schools-rate-themselves-favorably-preparing-students-college>.

National Research Council. (2009). Learning science in informal environments: People, places, and pursuits. Washington, DC: National Academies Press. <https://doi.org/10.17226/12190>.

National Research Council. (2012). A framework for K–12 science education: Practices, crosscutting concepts, and core ideas. Washington, DC: National Academies Press. <https://doi.org/10.17226/13165>.

Page, S. (2025). *The difference: How the power of diversity creates better groups, firms, schools, and societies*. Princeton, NJ: Princeton University Press. <https://press.princeton.edu/books/paperback/9780691271743/the-difference?srsId=AfmBOorC8hLs6qf9hHUSeHfjwTfTNa42nS76h-lpIAMAv0vMns6ggTm>.

- Panorama Education. (2024). Reliability and validity of Panorama's survey topics for students: 2024 update with addendum for versioned content. <https://go.panoramaed.com/hubfs/Validity-Report-Student-Topics-2020.pdf>.
- Riegle-Crumb, C., King, B., & Irizarry, Y. (2019). Does STEM stand out? Examining racial/ethnic gaps in persistence across postsecondary fields. *Educational Researcher*, 48(3), 133–144. <https://doi.org/10.3102/0013189X19831006>.
- Saw, G. K. (2020). Leveraging social capital to broaden participation in STEM. *Policy Insights from the Behavioral and Brain Sciences*, 7(1), 35–43. <https://doi.org/10.1177/2372732219895997>.
- The School District of Philadelphia. (2024). Pathways to community, joy, and fulfillment for School District of Philadelphia students. <https://www.philasd.org/strategicpartnerships/#partnerguide>.
- Slaughter, A., Moran, D., Lapp, D., & Lin, J. (2016). Racial disparities in educational opportunities in Pennsylvania: A first look at new civil rights data. Research for Action (RFA). <https://www.researchforaction.org/wp-content/uploads/2021/07/RFA-Civil-Rights-Data-PACER-Brief-Nov-1-2016.pdf>.
- Smith, C. (2012). Development and early validation evidence for an observational measure of high quality instructional practice for science, technology, engineering and mathematics in out-of-school time settings: The STEM supplement to the Youth Program Quality Assessment. The Forum for Youth Investment and Providence Afterschool Alliance. [https://www.researchgate.net/publication/324089942\\_Development\\_and\\_early\\_validation\\_evidence\\_for\\_an\\_observational\\_measure\\_of\\_high\\_quality\\_instructional\\_practice\\_for\\_science\\_technology\\_engineering\\_and\\_mathematics\\_in\\_out-of-school\\_time\\_settings\\_The\\_STEM](https://www.researchgate.net/publication/324089942_Development_and_early_validation_evidence_for_an_observational_measure_of_high_quality_instructional_practice_for_science_technology_engineering_and_mathematics_in_out-of-school_time_settings_The_STEM).
- Smith, C., Akiva, T., Sugar, S., Devaney, T., Lo, Y.-J., Frank, K., Peck, S. C., & Cortina, K. S. (2012). Continuous quality improvement in afterschool settings: Impact findings from the Youth Program Quality Intervention study. Forum for Youth Investment. <https://forumfyi.org/knowledge-center/continuous-quality-improvement-in-afterschool-settings-impact-findings-from-the-youth-program-quality-intervention-study/>.
- Stockmayer, S. M., Rennie, L. J., & Gilbert, J. K. (2010). The roles of the formal and informal sectors in the provision of effective science education. *Studies in Science Education*, 46(1), 1–44. <https://doi.org/10.1080/03057260903562284>.
- Sun, L. (2024). Embracing informal learning experiences to support science and mathematics education. *School Science & Mathematics*, 124(5), 289–292. <https://doi.org/10.1111/ssm.18307>.
- Taylor, D. (2024). The STEM labor force: Scientists, engineers, and technical workers (No. NSB-2024-5). National Science Board, National Science Foundation. <https://nces.nsf.gov/pubs/nsb20245/>.
- U.S. Department of Education, Office for Civil Rights. (2025). 2021–22 civil rights data collection, a first look: Students' access to educational opportunities in U.S. public schools. <https://www.ed.gov/media/document/2021-22-crdc-first-look-report-109194.pdf>.
- Vey, J. S., Andes, S., Hachadorian, J., & Katz, B. (2017). Connect to compete: How the University City-Center City innovation district can help Philadelphia excel globally and serve locally. The Brookings Institution. [https://www.brookings.edu/wp-content/uploads/2017/05/csi\\_20170511\\_philadelphia\\_innovationdistrict\\_report1.pdf](https://www.brookings.edu/wp-content/uploads/2017/05/csi_20170511_philadelphia_innovationdistrict_report1.pdf).
- YESTEM Project Team. (2021). YESTEM Insight 3.1: Equitable Youth Outcomes Model for informal STEM learning. <https://discovery.ucl.ac.uk/id/eprint/10138557/1/2021%20YESTEM%20Insight%203.1%20Equitable%20Youth%20Outcomes%20Model.pdf>.
- Zhao, M., Mathews, C. J., Mulvey, K. L., & Hartstone-Rose, A. (2022). Promoting diverse youth's career development through informal science learning: The role of inclusivity and belonging. *Journal of Youth and Adolescence*, 52(2), 331–343. <https://doi.org/10.1007/s10964-022-01694-2>.



# Literacy-Related Services in Partnership with Schools

Community-Based Organizations' Perceptions of Facilitators and Barriers

**Kristen D. Beach, Kristin D. Sinclair, Jennifer L. Merry, Chris O'Brien, Shannon Pardue, Adriana L. Medina, & Lan Kolano**

Literacy has been the focus of education reform for decades, with federal and state-level legislation aimed at enhancing teaching, learning, and accountability in K-12 public schools.

The most recent wave of literacy reform has focused on the adoption and implementation of evidence- or scientifically based reading instruction, or what has become known as the “Science of Reading” (Castles et al., 2018; National Reading Panel, 2000). The body of research that composes the Science of Reading recommends the use of systematic and explicit instruction in phonemic awareness, phonics, fluency, vocabulary, and comprehension for developing foundational literacy skills in elementary school (Petscher et al., 2020). Evidence-based practices and programs related to reading and literacy development are well established; as of 2025, a total of 40 U.S. states and the District of Columbia have

passed laws or enacted policies mandating evidence-based literacy instruction in schools. Mandates have resulted in changes in teacher preparation and licensure; teacher professional development and coaching; and assessment, materials, and instruction (Schwartz, 2022). In North Carolina, the state in which the present study was conducted, the Excellent Public Schools Act of 2021 (S.L. 2021-8) mandated that literacy instruction be grounded in the Science

---

**KRISTEN D. BEACH** is a professor; **KRISTIN D. SINCLAIR, JENNIFER L. MERRY,** and **SHANNON PARDUE** are doctoral students; and **CHRIS O'BRIEN** is an associate professor in the Department of Special Education and Child Development, UNC Charlotte. **ADRIANA L. MEDINA** is a professor and department chair, Department of Reading and Elementary Education, UNC Charlotte. **LAN KOLANO** is a professor and department chair, Department of Middle, Secondary, and K-12 Education, UNC Charlotte.

of Reading statewide; all elementary grade teachers were required to participate in intensive training to incorporate evidence-based literacy instruction in their classrooms.

The increased focus on evidence-based literacy instruction extends beyond the school day. Researchers have underscored the positive impact of tutoring in the out-of-school time (OST) space to improve academic outcomes (Nickow et al., 2024). Curriculum-aligned, high-impact high-dosage tutoring is most effective (Nickow et al., 2024; Robinson et al., 2021). Such tutoring emphasizes, in part, high-quality curricula and materials, including research- and evidence-based practices and programs, as well as highly trained and supported tutors (Robinson et al., 2021). The COVID-19 pandemic resulted in a resurgence of OST tutoring efforts provided by for-profit and nonprofit organizations alike, in light of COVID-related learning loss (Lewis & Kuhfeld, 2021) and the availability of federal emergency relief funds via the Coronavirus Aid, Relief, and Economic Security Act (CARES Act; P.L. 116-136) dedicated for academic skill recovery efforts in districts across the nation. In Mecklenburg County, North Carolina, the setting for the present study, the largest local school district used relief dollars to launch a sizable OST tutoring initiative in 2022, inviting tutoring providers from across the nation, including community-based organizations (CBOs) that provide OST tutoring services, to propose high-impact, high-dosage tutoring.

### Traditional OST Programming and Its Connection to CBOs

Many CBOs provide some form of tutoring in OST (e.g., afterschool) settings as part of their services to schools. However, CBOs' missions and goals at the organization level, as well as goals related to their OST services, are typically broader than skill-specific tutoring. OST programming is designed to reinforce, extend, and enhance school-based learning through complementary practices that reflect providers' distinct missions, settings, and relationships with youth, and aims to support academic learning, experiment with other forms of learning, encourage connections with communities and families, and encourage children to

set and pursue goals for their own learning. Targeted outcomes are broad and include academic, social, emotional, and other developmental domains (Noam et al., 2003).

To achieve these goals, the OST hours must be structured differently from the school day, incorporating extended, enriched, and intentional learning (Noam et al., 2003). Extended learning provides reinforcement of school-day academic instruction,

often emphasizing homework help or skill-specific tutoring. High-impact high-dosage tutoring could be considered an intensive form of extended learning, requiring specialized materials and skilled human

resources for successful implementation. Enriched learning activities incorporate self-directed, explorative, and hands-on learning experiences that are different from, but complementary to, classroom instruction. Intentional learning fosters nonacademic skills and social behaviors.

Moreover, afterschool programs are intermediary environments (Noam et al., 2003), providing important connections between the school, community, and home (Bronfenbrenner, 1994; Epstein, 2011; Yamauchi et al., 2017). CBOs that provide OST programming engage students in extended and enriched learning that forms a curricular bridge (Noam et al., 2003) between the school and afterschool spaces; their broader missions and programs reflect their engagement across spheres by including child-, family- and community-centered supports.

### Conflicts in School and OST Priorities

Strong partnerships, shared resources, and communication between provider and school partners are important for improving student outcomes in OST programming (Anthony & Morra, 2016; Wimer et al., 2003). Partnerships can be fostered by collaboration and communication, alignment of content, intentional design, and instructional quality of OST activities with in-school experiences (Noam et al., 2004). There are varying degrees of curricular alignment, however, and perceptions of instructional quality are somewhat dependent on beliefs about instructional goals. Despite recommendations for OST programming to supplement, rather than duplicate, the school day (Noam et al., 2003), researchers have found that

Curriculum-aligned,  
high-impact high-dosage  
tutoring is most effective.

educators prioritize and value OST programming that features extended learning opportunities, highly aligned with the school curriculum

As examples, Anthony and Morra (2016) noted conflicts in priorities of schools and afterschool providers, with schools focusing on academic extension and afterschool providers supporting both academic learning and whole-child development. Similarly, Ruhr and Danforth (2024) reported that educators placed emphasis on the need for afterschool programs to address academic and social needs of enrolled children.

An educational context focused on COVID recovery, the Science of Reading, and high-impact high-dosage tutoring, as was the case in the present study, could place additional pressure on afterschool programs to emphasize curricular-aligned intensive extended learning programs that resemble high-impact high-dosage tutoring over multifaceted programming. Although extended learning programs, and specifically high-impact high-dosage tutoring, demonstrate promise for improving academic outcomes, an overemphasis on high-impact high-dosage tutoring could promote tension in school-CBO partnerships, especially when adoption of such programming is misaligned with broader CBO missions, or when CBOs lack materials, staffing, training, or other capacity to provide such intensive programming.

The main purpose of the current study was to explore the perspectives of nonprofit CBO leaders regarding what they perceive to be the literacy-related needs in the region, as well as their perceptions of facilitators and barriers to providing literacy services in partnership with schools. *Facilitators* are defined here as factors that promote or enhance the implementation and success of programming. *Barriers* are factors that impede or limit the effectiveness or execution of programming. By focusing on the CBO perspective within the present educational context, this study can provide critical insights that may serve to strengthen

**CBOs' missions and goals at the organization level, as well as goals related to their OST services, are typically broader than skill-specific tutoring.**

**Partnerships can be fostered by collaboration and communication, alignment of content, intentional design, and instructional quality of OST activities with in-school experiences.**

contemporary partnerships and promote student success.

## Methods

The present study took place in the large, urban county of Mecklenburg, NC. In July 2025, the population exceeded 1.2 million; the median household income was \$87,005 and the poverty rate was 10.6%. Just over 22% of people aged 5 or above spoke a language other than English at home (U.S. Census Bureau, 2025). According to *U.S. News and World Report* (n.d.), Mecklenburg County houses the second largest school district in the state (18th in the nation), serving more than 144,000 students across 184 schools (121 elementary schools). Minority enrollment is approximately 80% and 49.2% of students are economically disadvantaged. According to recent state testing, 42% percent of elementary grade students scored proficient in reading, and 51% scored proficient in math. The region has been compared to other large urban centers in terms of regional strengths and needs across a variety of sectors, including education.

Mecklenburg County houses more than 2,500 nonprofit organizations (North Carolina Center for Nonprofits, 2022), many of which are education focused and have multistate or national presence. The Charlotte–Mecklenburg community is particularly literacy focused. Many nonprofits have literacy-focused missions, there is a large library system, professional sports teams promote literacy initiatives, and funding opportunities exist for literacy-related programming. A significant asset is a community initiative called Read Charlotte, which was initiated in 2016 with the primary goal of promoting literacy achievement in the region. Moreover, the largest local school district in the region includes an entire department dedicated to supporting the more than 400 school–community partnerships, with the goal of promoting positive academic, social, and engagement outcomes of students. This department holds quarterly partnership meetings to promote communication, partnership expansion, and goal alignment. The rich

literacy focus of the region presented a unique opportunity to examine CBO perspectives regarding regional needs and school partnerships.

The research team was composed of five education faculty and five doctoral students from a local public university who brought prior experience in education and CBO engagement. All have a shared commitment to advancing literacy.

This study employed an exploratory sequential mixed-methods research design, integrating qualitative and quantitative approaches for data collection, analysis, and interpretation (Mills & Jordan, 2023). Phase 1 of data collection included interviews and paired interviews. Data and preliminary findings from Phase 1 informed development of a survey, administered during Phase 2. This study was approved by the university's institutional review board. All participating organizations gave permission for their organization names to be used in reporting.

The rich literacy focus of the region presented a unique opportunity to examine CBO perspectives regarding regional needs and school partnerships.

## Recruitment, Data Collection, and Analysis

The selection of CBOs for both phases was informed by a purposeful list of 32 nonprofit organizations focused on literacy services in Mecklenburg County, identified through systematic web searches and expert recommendations. Data were collected in the summer of 2024.

### Qualitative Data: Interviews

Phase 1 participants were nine of the 32 eligible CBOs, selected using purposive and random sampling to ensure proportional representation in terms of the specific type of literacy services they provided (e.g., tutoring, books and other literacy resources, educator professional development), and whether they were regionally or nationally organized. See Table 1 for a description of Phase 1 participants and the literacy-focused services they provided.

Together, one faculty member and one doctoral student conducted each interview virtually via Zoom with recording enabled. Interviews ranged from 29 to 80 minutes ( $M = 56$  minutes) and followed a semi-structured protocol with 11 questions exploring each organization's vision, mission, focal population,

program goals, and perceptions of facilitators and barriers encountered in their work. Data analysis for this study focused on responses regarding facilitators and barriers related to their work with schools.

Within a month of the preliminary interviews, one faculty member and one doctoral student led in-person paired interviews with eight of the same nine CBOs. Paired interviews ranged from 88 minutes to 102 minutes ( $M = 97$  minutes) and allowed CBOs to expand interview responses. Paired interviews followed a semi-structured protocol that included 16 researcher-developed questions exploring local literacy-related needs and CBO perspectives on how those needs were met, CBO self-perceptions on facilitators and barriers to meeting literacy needs, and what support and partnerships were needed for successfully implementing their programs.

Qualitative data collection resulted in 13 data sources (i.e., transcripts; one for each of nine interviews plus four paired-interview transcripts) that were created from audio using Rev.com, and verified by two doctoral student researchers. The research team sent verified transcripts to CBO respondents for member checking; one CBO returned its transcript with edits for clarity. Coding was completed in teams initially using a codebook of deductive codes, which were descriptive and focused on identifying narrative references to facilitators and barriers to service provision. Inductive codes were applied during a second round of coding and identified specific types of facilitators and barriers. Researchers reconciled disagreements at team coding meetings. Thematic analysis was used to identify key facilitators and barriers.

### Quantitative Data: Inquiry Survey

Phase 2 data collection involved a survey sent electronically to directors of all 32 nonprofit CBOs. Survey respondents returned complete surveys within a one-month return deadline.

The research team developed and revised survey items to ensure clarity, relevance, and alignment with the study's objectives. Phase 1 participants provided feedback on survey question wording, structure,

**Table 1. Overview of community organizations from Phase 1 data collection**

| Organization                              | Overview                                                                                                                                                                                                                                                                                                                                                                                          | Literacy-Focused Programming                                                                                                                                                                                                                                                                      |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Avery and Masa</b>                     | A 501(c)(3) nonprofit based in the Southern region, supporting families with reading, financial literacy, GED services, and afterschool programs. It emerged from community needs during the COVID-19 pandemic and aims for holistic impact across neighborhoods, enhancing engagement and program effectiveness.                                                                                 | Book clubs focused on a set of narrative texts with themes related to environmental responsibility and conservation. Book club activities are aligned with third-grade literacy standards in North Carolina and designed to promote interest in reading, social-emotional learning, and literacy. |
| <b>Caterpillar Ministries</b>             | A 501(c)(3) nonprofit founded in 2007. Serves a largely Hispanic population in a mobile home park neighborhood. Provides holistic community support, including job skills training, conflict resolution, parent workshops, high school mentorship, counseling, and preschool partnerships.                                                                                                        | Academic enrichment in the form of tutoring through partnerships with other organizations, and homework help.                                                                                                                                                                                     |
| <b>Charlotte Speech and Hearing (CSH)</b> | Operating for 56 years, CSH focuses on audiology, speech, and critical community needs. Partnering with United Way, it supports teachers of children from birth to three years old and targets areas identified as corridors of opportunity.                                                                                                                                                      | Direct service instruction in language development through evidence-based programs that build language skills related to auditory comprehension, phonemic awareness, print knowledge, and language expansion.                                                                                     |
| <b>Helping Education</b>                  | Founded in 2011 and based in Raleigh, it expanded to Charlotte in 2018–2019 and formerly operated in 11 North Carolina counties. Its interventions were implemented in all U.S. states and more than 60 countries. The organization emphasized educational equity through evidence-based literacy programs, aiming to serve 50,000 students in five years. All operations ceased in October 2024. | Afterschool tutoring using a research-based program designed by literacy experts and aligned with scientific evidence for supporting reading fluency.                                                                                                                                             |
| <b>International House</b>                | A 501(c)(3) nonprofit dedicated to immigrant support and community integration focused on youth literacy programs for K-5 students who do not speak English at home, running summer school programs and exploring year-round support strategies to ensure educational continuity for immigrant children.                                                                                          | Afterschool and summer tutoring focused on K-5 foundational reading skills for emergent bilingual students.                                                                                                                                                                                       |
| <b>Meck Pre-K</b>                         | Serving Mecklenburg County, focuses on early childhood education from prenatal through a child's fifth birthday. Key programs include the Dolly Parton Imagination Library and a pre-K curriculum across 106 classrooms. It is governed by a community and executive board and benefits from county funding.                                                                                      | Employs Creative Curriculum, which includes oral language activities and early literacy skill development.                                                                                                                                                                                        |
| <b>Promising Pages</b>                    | A 501(c)(3) nonprofit managing a book bank that redistributes donated children's books to community partners. It operates locally and extends to surrounding counties, supporting other nonprofits, schools, universities, and libraries to address inequities through book distribution.                                                                                                         | In addition to book distribution, Promising Pages connects families and communities to local literacy-related resources, programming, and learning opportunities to support reading engagement at home.                                                                                           |
| <b>Read Charlotte</b>                     | A 501(c)(3) nonprofit focused on improving early literacy development for children in Mecklenburg County from birth to third grade, affecting elementary and middle school. Realigns community resources to address early literacy challenges and is set to sunset by 2030 after achieving its educational goals.                                                                                 | Not direct service providers, but support other community organizations to provide instruction and high-impact high-dosage tutoring using research- and evidence-based programs.                                                                                                                  |
| <b>Strive CLT</b>                         | A small-scale 501(c)(3) nonprofit that conducts year-long book clubs and summer programs, primarily operating locally with some national expansion. Distributes books through giveaways and school partnerships, focusing on enhancing literacy in schools throughout the academic year and expanding outreach in the summer.                                                                     | Provides afterschool literacy enrichment in the form of homework help, Active Reading, and vocabulary support.                                                                                                                                                                                    |

and content, and the research team made revisions. Surveys contained a series of demographic questions. Respondents were also asked to rank-order a list of literacy-related needs in the county and to select responses from a provided list of potential facilitators and barriers in the county that helped or hindered the CBO's ability to address the area's needs. For rank-order and selection questions, answer choices were derived from Phase 1 data analysis, allowed for multiple selection, and included an "other" option.

Survey data were analyzed using frequency counts and proportions for items related to county needs, and school-related facilitators and barriers. The research team also summarized narrative data related to work with schools included in the "comments" section of the survey.

## Methodological Integrity

Throughout the research process, the research team remained conscious of how our backgrounds and experiences might influence interactions and interpretations. To address potential bias, the team engaged in weekly reflections, discussed emerging findings, monitored assumptions, and created a comfortable environment for Phase 1 participants. Recognizing the roles researchers can play in power dynamics, the team approached data collection in Phase 1 with intentional neutrality, using consistently framed questions to minimize bias.

The team maintained systematic records of methodological decisions. Peer reviews and debriefings assisted with reducing bias and enhanced the integrity of findings. The researchers provided a detailed description of the focus county and participant characteristics to enhance the transferability of the study's findings.

## Findings

The nine interview respondents (Table 1) were nonprofit organizations with literacy-focused missions. Read Charlotte does not provide direct services to children; rather, it serves as a broker between literacy research and practice, with a focus on supporting CBOs to understand and implement evidence-based practices

in literacy and assessment, as well as connecting CBOs to schools. Meck Pre-K represents a system of high-quality pre-K programs in North Carolina. The remaining organizations directly or indirectly serve children in the area of literacy, by providing enrichment and general tutoring (Avery and Masa, Caterpillar Ministries, International House, Strive CLT), research- or evidence based instruction or tutoring (Charlotte Speech and Hearing, Helping Education) or access to books and resources (Promising Pages).

Of the 32 distributed surveys, 27 CBOs submitted complete responses (84.38% response rate). Organizations provided services to children in preschool ( $N = 1$ , 3.7%), in kindergarten to second grade ( $N = 17$ , 62.96%), and/or in grade 3 to 5 ( $N = 18$ , 66.67%). Most organizations ( $N = 21$ , 77.77%) provided their services at a school, with others pro-

viding services at their brick-and-mortar buildings, online, in another community location, or at students' homes. Twenty-five organizations responded to questions about timing and type of services. All 25 provided literacy services during the academic year and/or summer; focus areas included academic tutoring ( $N = 16$ , 64.0%), engaging

with families ( $N = 22$ , 88.0%), providing books or other reading materials ( $N = 22$ , 88.0%), or providing professional development to educators ( $N = 19$ , 76.0%). Regarding literacy programming, more than half of CBOs indicated that vocabulary (52%), listening comprehension (59%), and/or reading comprehension (56%) were of primary focus. Conversely, fewer CBOs identified phonemic awareness (44%), phonics (48%), or fluency (37%) as the primary focus. In addition, 78% of organizations identified motivation and engagement to be a primary focus in addition to literacy-specific skills.

## Perceptions of Regional Needs: Students Lack Foundational Skills; Schools Have Primary Responsibility

When asked about regional needs, CBO leaders emphasized that many students, including third and fourth graders, lacked proficiency in foundational literacy skills, and that the COVID-19 pandemic was in part to blame. About half (45%) of survey respondents

**CBO leaders emphasized that many students, including third and fourth graders, lacked proficiency in foundational literacy skills, and that the COVID-19 pandemic was in part to blame.**

ranked children’s low levels of literacy as a top-three regional problem (of 12 options). Interview respondents expressed concern over the ability of schools to address COVID-related learning loss on their own, referencing high teacher turnover and a history of poor-quality instruction. CBO leaders said schools turned to CBOs for supplemental support, but expected too much:

I feel like we do all the heavy lifting ... how much more is it that y’all want us to do? What is happening at school? The ask of the nonprofit community is huge.

Although CBO leaders felt compelled to respond to COVID-related learning loss, they continued to see educational entities as the ones fundamentally responsible for addressing literacy deficits. Specifically, survey results showed that they viewed educators (63%), schools (56%), and districts (56%) as the top three parties responsible for foundational reading—far outpacing nonprofits (15%).

### Perceptions of Partnerships: Schools and Funders Are Important, but They Can Create Barriers

Another major theme centered on the tension inherent in partnerships between CBOs, educational entities, and corporate or foundation-based funders. CBO leaders viewed educational entities and funders as

both critically important partners and as barriers to enacting CBO programs and missions. This theme was reflected across data sources. In the survey, 24 respondents (88.9%) identified educational entities as key assets or facilitators in the region, yet 17 (63%) also identified them as barriers. Similarly, whereas 22 survey respondents (81.5%) identified funding as an asset, 23 (85.2%) identified it as a barrier. Narrative comments pointed to positive relationships, strong communication, and shared goal-setting as facilitators. Communication challenges, a lack of alignment in curricular and programming priorities, overwhelmed staff, and limited physical space were specified barriers (Table 2).

Interview data revealed that a mismatch between the core missions of CBOs and the curricular priorities of schools and funders contributed to tensions in partnerships. Whereas the district’s strategic plan focused on foundational literacy skills for elementary students, many CBOs provided more holistic services rather than focusing exclusively on evidence-based foundational skills tutoring. CBO leaders felt that school buy-in was often contingent on how closely their curriculum aligned with the instructional priorities of educational entities—and, sometimes, funders. The following sections integrate qualitative and quantitative findings to further explore how partnerships supported CBO programming,

**Table 2. Facilitators and barriers to partnerships**

| Data Phase            | Assets and Facilitators                                                                                                                                                                                                         | Barriers                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Phase 1: Qualitative  | <ul style="list-style-type: none"> <li>• Goal alignment</li> <li>• Curriculum alignment</li> <li>• Resource access</li> <li>• Partnerships with school personnel</li> <li>• Partnerships with other CBOs and library</li> </ul> | <ul style="list-style-type: none"> <li>• Low reading proficiency levels</li> <li>• Lingering pandemic impacts</li> <li>• Emphasis on foundational skills limits recognition of other supports</li> <li>• Small staff capacity</li> <li>• Principal and teacher turnover</li> <li>• Challenges establishing trust and relationships with schools</li> </ul> |
| Phase 2: Quantitative | <ul style="list-style-type: none"> <li>• Positive relationships</li> <li>• Supportive school administration</li> <li>• Strong partnerships</li> <li>• Shared goal setting</li> <li>• Good communication</li> </ul>              | <ul style="list-style-type: none"> <li>• Communication challenges</li> <li>• Schools and school systems overwhelmed or too busy to engage</li> <li>• “Bureaucratic” rules and regulations limit program scope</li> <li>• Lack of alignment between CBO programming and school priorities</li> <li>• Limited physical space in schools</li> </ul>           |

Note: This table summarizes school-related factors reported as affecting collaboration with CBOs.

with particular attention to how educational entities functioned simultaneously as critical partners and significant barriers to CBO programming.

### **Other CBOs and Educational Entities as Critical Partners in Programming**

CBOs viewed other nonprofit organizations and educational entities as critical partners for enacting their programming. Although CBO partnerships centered broadly around connecting families and students to services, resource sharing, and mutual program promotion, many CBOs intentionally partnered with others to increase alignment between their programming and literacy-related priorities held by the school district and funders. Read Charlotte's endorsement of evidence-based literacy practices and focus on aligning CBO programming with district priorities may have been a driving force behind CBOs' attention to highly aligned extended programming. Read Charlotte said:

I think any literacy conversation in Charlotte Mecklenburg today that is not grounded in the district's five-year plan is missing the mark. I mean, they've clearly laid out, here's what we're after. ... The number-one priority for elementary and middle school was literacy.

That's why we have goals that extend to grade eight on literacy. ... The moment those goals got passed in October of last year, we knew where the puck was going and we started skating in that direction. So to me, it would feel like a missed opportunity to really not ground all of that because [the superintendent] and her leadership team have given us the clearest direction.

CBOs that did not specialize in providing extended programming that was highly aligned with school curricula and evidence-based literacy practices (such as high-impact high-dosage tutoring) described partnering with other CBOs or educators so that they could provide such programming, which they viewed as valuable. One organization, for example, described working closely with a local district teacher as well as university faculty to ensure that the curriculum in one of their programs was directly aligned with

the district's curriculum. Another also described partnerships to expand program offerings:

[W]e are working on partnering with [another project] in order to [provide tutoring in decoding] for some students and also with the library to [incorporate] Active Reading [a regional program developed by Read Charlotte, based on dialogic reading (Pillinger & Vardy, 2022) with training provided by the public library system], which we know is already research based, but we would like to make it robust and usable in this way so that kids are getting it in high dosage. ... Even though Active Reading is available for just about anybody, I wanted to still partner with [the library] on that and make sure I was doing all the things right.

Another organization that described itself as a "holistic" service provider whose members were "not experts in literacy" emphasized the value of other organizations doing the "heavy lifting" for it when it came to academic tutoring. They said: "What we do is we have the volunteers, the space, the kids, and we will do the program, but [the literacy experts] are doing all of the data collection, the assessments, the training, [and] the content."

Partnerships with educational entities were also viewed as paramount for program success. To illustrate, one organization noted that its partnership with the district and school allowed it to provide literacy skills instruction in the afterschool space; previously, it was restricted to community residences. Another, which focused its services within the community, stressed the role schools played in helping to identify children within its community who would benefit from CBO literacy programming:

When [these opportunities] opened up for the summer, we reached out to the school and said, "Who are the kids that we should target for these programs?" ... We're really relying on the expertise of the schools.

CBOs described partnerships with school personnel, specifically principals and teachers, that facilitated programming. Specifically, one leveraged

**Many CBOs provided more holistic services rather than focusing exclusively on evidence-based foundational skills tutoring.**

partnerships with school principals to identify a site coordinator and teachers who would promote and teach in its afterschool program:

Principals value [our program]. And so they work with us to come into the school, they help us identify that site coordinator. They encourage their teachers to work with us and explain the program. And we have seen that that makes a huge difference. ... We provide the tutors who are [district] teachers, who we're paying to stay after school with a supplemental curriculum. We feel really strongly about having the credentialed teachers as tutors.

Other organizations also noted the value of partnerships with schools and principals in relation to scaling up. One explained that scaling up is sometimes facilitated when the principal of a school partner moves to a new school and duplicates the CBO-school partnership in the new building: "The way this works is you have to build relationships with the people at the school because if you don't have the relationships, it's not going to work." Another mentioned leveraging existing relationships with word-of-mouth recommendations from principals to scale up its programming across schools. Yet another described the value of teacher partnerships for promoting its program, which distributes books to children during the summer months.

### ***Educational Entities and Funders as Barriers to Programming: Trust, Gatekeeping, Focus on Evidence-Based Practices, Friction Between Priorities***

Despite partnerships and collaboration with educational entities being paramount for CBO success, educational entities—and, sometimes, funders—were also seen as one of the most significant barriers to providing the kinds of services CBOs felt would "move the needle" in literacy. First, several CBOs voiced concerns with getting school leadership to "trust" CBO staff expertise and program quality. They shared a sentiment that the school system was being overly restrictive with which programs were allowed in buildings, from "bureaucratic" rules that limit program scope to school office personnel who prevented CBO access to schools for "silly reasons." This was especially true for programs that adopted a more holistic approach to student and family support, as opposed to focusing only on curriculum-aligned, intensive

extensions. This general feeling was captured in the following quote:

We're here to support the work that you do, so if you let us do our job or if you support us in the work that we're doing, it's going to make your job easier. And at the end of the day, if we're all student-centered, it's going to have the greatest impact on the student. And so if that's the bottom line, I can't figure out for the life of me where all the challenge comes from trying to implement or bring or open access for students who would not get [access otherwise].

Principals were sometimes seen as gatekeepers preventing partnership. One CBO perceived that principals did not see the CBO's homework help and social-emotional skill-focused programming as "just as meaningful" as tutoring focused on foundational skills. The organization emphasized its perception of the limited impact that tutoring has on a child, and its desire for the district to coordinate and leverage a larger range of services across providers:

Tutoring is important, but if that is the start and the finish of what you do, you're going in, you're touching the child and you're leaving, then that impact is likely going to be for the moment. But what happens next year when they've advanced out of your program, but they still need something else? We don't have any continuums. ... We've got all these organizations, but we haven't set it up in a way that [supports a continuum], and I feel like the district could help us a little bit with that.

Some respondents reported that many funders also restricted awards to evidence-based or evidence-informed tutoring approaches (i.e., those aligned with high-impact high-dosage tutoring), neglecting indirect, innovative or family-centered approaches to holistic child and family development:

In the meantime, mom is struggling to even keep the house or the roof over their heads. So I realize we're supposed to be talking about literacy, but it's all connected ... and if the corporate philanthropy world here in Charlotte honestly would say "enough is enough," and ask us all to come around the table and say, "How can we really fund work that will move the needle for literacy and the household together?" this community would be so different. It would look so different.

CBOs that provided academic support, but through enrichment programming rather than foundational skills tutoring, also experienced friction between their programming and perceived school priorities. One designed its book club program to align with third-grade literacy standards, and its program is championed by a former teacher. However, given difficulty with school buy-in, it wondered: “Do we need to be offering a foundational-type program for those younger grades? How do we stick to [what we know is] important, without undermining the importance of other [literacy] skills? Having principals see that our program is just as meaningful, even though we aren’t hitting those directly, has been a big challenge.”

Another organization also advocated for the value of its book distribution services, making an argument to its connection to the tutoring space: “[T]he tutoring programs and the programs that are working to build summer programming for literacy development and the broader debate around what is the science of reading? You need books for all that. And so don’t give books short shrift. They need to exist.”

## Discussion

The current findings reinforce the importance of strong, intentional partnerships between schools and CBOs to facilitate services, consistent with the existing literature (Epstein, 2011; Noam et al., 2003; Noam et al., 2004; Ruhr & Danforth, 2024; Sanders, 2006; Valli et al., 2016). However, they also mirror findings of others (Anthony & Morra, 2016; Ruhr & Danforth, 2024) that school partners may devalue CBO services when they do not closely align with school curricula and programming. The perceived lack of support from schools regarding holistic CBO programming arose in the present study despite a regional context that included shared emphasis on literacy development and critical pathways for communication to develop shared goals and align support, as has been recommended in the literature (Ruhr & Danforth, 2024).

Programming offered by CBOs is most impactful when it is multifaceted and includes enhancements, extensions, and intentional learning (Noam et al., 2003). Multifaceted programming supports multiple aspects of child development, addressing a broad range

of children’s needs beyond academic skills recovery and acceleration. The most meaningful progress comes when individuals across spheres work collectively on shared goals such as student achievement, home-school communication, and family well-being (Epstein, 2011), and CBOs that provide afterschool programming hold a critical intermediary role between the school and home spheres (Noam et al., 2003). However, the present study, which occurred post-COVID-19 and in the midst of a heightened focus on high-impact, high-dosage literacy tutoring as a recovery effort, underscored tensions in school-CBO partnerships, grounded in mismatches between school curricular priorities and CBO programming. Although extended programming is a valuable form of afterschool support (Noam et al., 2003) and is implemented by many CBOs, the present study is the first, to our knowledge, to reveal that an intensive form

Programming offered by CBOs is most impactful when it is multifaceted and includes enhancements, extensions, and intentional learning.

of extended programming—high-impact high-dosage tutoring—might be at the heart of school-CBO conflict related to curricular priorities and alignment in a post-COVID-19 recovery context. High-impact high-dosage tutoring requires resources (e.g., evidence-based programs, high-quality training and coaching) that

can be difficult for nonprofit CBOs to acquire given their limited funding and staffing constraints. Some CBOs in this study addressed capacity constraints by partnering with others whose programming already included intensive tutoring; nevertheless, perceived tensions centered on conflicting school-CBO curricular priorities persisted.

## Limitations

Findings of the present study should be considered in light of limitations. First, this study focused exclusively on nonprofit CBOs; findings may not reflect other types of school-organization partnerships, and CBO perceptions of educational entities’ foci and values in programming could be misinformed. Second, our study was based in a single county in North Carolina—our results may be limited to the targeted region, which may be unique especially when it comes to support for district-community partnerships. We provided detailed contextual information to promote

transferability considerations. In addition, Phase 1 data collection occurred with only nine of 32 eligible CBOs; their perspectives may not fully reflect those of similar CBOs. Last, we may have missed smaller organizations without a web presence or name recognition in our search, thus unintentionally underrepresenting the viewpoints of these organizations.

## Implications

Findings of this study related to tensions in partnerships between CBOs and educational entities suggests the need for clearer communication about rationales for district initiatives and program selection, and stronger strategic planning and partnership around the interconnectedness of services (Jochim et al., 2023; Ruhr & Danforth, 2024). Educational entities and/or funders may also require support in considering the ways in which holistic programming, beyond high-impact high-dosage tutoring, can promote student success. Conversations and partnership around enriching and intentional afterschool experiences and family support could result in endorsement of a broader array of afterschool programming, reserving high-impact, high-dosage tutoring for strategic deployment rather than a blanket requirement. A regional literacy consortium or collaborative led by a trusted other (e.g., a community initiative like Read Charlotte, or a college of education) could provide networking opportunities for school and CBO partners in a third space, and could help establish a shared overall vision of how students can benefit from the multifaceted and complementary services offered by CBOs.

When CBOs with a holistic approach to supporting students are faced with expectations for providing high-impact, high-dosage literacy tutoring using evidence-based practices or programs, they may be able to turn to other CBOs or colleges of education in their region for support with adoption and implementation. That is, CBOs need not abandon their multifaceted programming to adhere to a narrow conception of literacy support, but where literacy proficiency is low, incorporating research-supported instruction and high-impact tutoring can make a difference in their ability to receive funding, partner with educational entities, and ultimately affect student outcomes.

## References

- Anthony, K., & Morra, J. (2016). Creating holistic partnerships between school and afterschool. *Afterschool Matters*, (24), 33–42. <https://www.niost.org/Afterschool-Matters-Fall-2016/creating-holistic-partnerships-between-school-and-afterschool>.
- Bronfenbrenner, U. (1994). Ecological models of human development. In *International encyclopedia of education* (2nd ed., Vol. 3, pp. 1643–1647). Oxford, UK: Elsevier.
- Castles, A., Rastle, K., & Nation, K. (2018). Ending the reading wars: Reading acquisition from novice to expert. *Psychological Science in the Public Interest*, 19(1), 5–51. <https://doi.org/10.1177/1529100618772271>.
- Coronavirus Aid, Relief, and Economic Security Act, Pub. L. No. 116-136, 134 Stat. 281 (2020). <https://www.congress.gov/116/plaws/publ136/PLAW-116publ136.pdf>.
- Epstein, J. L. (2011). *School, family, and community partnerships: Preparing educators and improving schools* (2nd ed.). Routledge. <https://doi.org/10.4324/9780429494673>.
- Excellent Public Schools Act of 2021, S.L. 2021-8 (N.C. 2021). <https://www.ncleg.gov/Sessions/2021/Bills/Senate/PDF/S387v4.pdf>.
- Jochim, A., Daramola, E. J., & Polikof, M. (2023). Teachers and tutors together: Reimagining literacy instruction in Oakland. Center on Reinventing Public Education (CRPE). <https://crpe.org/teachers-and-tutors-together-reimagining-literacy-instruction-in-oakland/>.
- Lewis, K., & Kuhfeld, M. (2021). Learning during COVID-19: An update on student achievement and growth at the start of the 2021-22 school year. NWEA Research. <https://www.nwea.org/research/publication/learning-during-covid-19-an-update-on-student-achievement-and-growth-at-the-start-of-the-2021-22-school-year/>.
- Mills, G. E., & Jordan, A. W. (2023). *Educational research: Competencies for analysis and applications* (13th ed.). Pearson.
- National Reading Panel. (2000). Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. National Institute of Child Health and Human Development. <https://www.nichd>.

[nih.gov/sites/default/files/publications/pubs/nrp/Documents/report.pdf](https://www.nih.gov/sites/default/files/publications/pubs/nrp/Documents/report.pdf).

Nickow, A., Oreopoulos, P., & Quan, V. (2024). The promise of tutoring for preK-12 learning: A systematic review and meta-analysis of the experimental evidence. *American Educational Research Journal*, 61(1), 74–107. <https://doi.org/10.3102/00028312231208687>.

Noam, G. G., Barry, S., Moellman, L., Van Dyken, L., Palinski, C., Fiore, N., & McCouch, R. (2004). The four Cs of afterschool programming: A new case method for a new field. *Afterschool Matters Occasional Paper Series*, 5. [https://www.niost.org/pdf/afterschoolmatters/asm\\_2004\\_op\\_fall/asm\\_2004\\_op\\_fall-1.pdf](https://www.niost.org/pdf/afterschoolmatters/asm_2004_op_fall/asm_2004_op_fall-1.pdf).

Noam, G. G., Biancarosa, G., & Dechausay, N. (2003). *Afterschool education: Approaches to an emerging field*. Cambridge, MA: Harvard Educational Publishing. ISBN-1-891792-07-5.

North Carolina Center for Nonprofits. (2022). Nonprofits' impact on North Carolina. [https://ncnonprofits.org/resources/nonprofit-starter-kit/nonprofits-impact-north-carolina#:~:text=Nonprofits%20Are%20Not%20Evenly%20Distributed,400%20nonprofits\)%20has%20the%20fewest](https://ncnonprofits.org/resources/nonprofit-starter-kit/nonprofits-impact-north-carolina#:~:text=Nonprofits%20Are%20Not%20Evenly%20Distributed,400%20nonprofits)%20has%20the%20fewest).

Petscher, Y., Cabell, S. Q., Catts, H. W., Compton, D., Foorman, B. R., Hart, S. A., Lonigan, C. L., Phillips, B., Schatschneider, C., Steacy, L. M., Patton Terry, N., & Wagner, R. (2020). How the science of reading informs 21st century education. *Reading Research Quarterly*, 55(51), 5267–5282. <https://doi.org/10.1002/rrq.352>.

Pillinger, C., & Vardy, E. (2022). The story so far: A systematic review of the dialogic reading literature. *Journal of Research in Reading*, 45(4), 533–548. <https://doi.org/10.1111/1467-9817.12407>.

Robinson, C. D., Kraft, M. A., Loeb, S., & Schueler, B. E. (2021). Accelerating student learning with high-dosage tutoring. EdResearch for Recovery. <https://readingpartners.org/wp-content/uploads/2022/11/Robinson-C.D.-Kraft-M.A.-Loeb-S.-Schueler-B.E.-2021-February-Accelerating-Student-Learning-With-High-Dosage-Tutoring.-EdResearch-for-Recovery-Design-Principles.pdf>.

Ruhr, L. R., & Danforth, L. (2024). School staff perceptions of community afterschool partnerships. *Afterschool Matters*, 38, 29–38. <https://www.niost.org/Afterschool-Matters-Spring-2024/school-staff-perceptions-of-community-afterschool-partnerships>.

[niost.org/Afterschool-Matters-Spring-2024/school-staff-perceptions-of-community-afterschool-partnerships](https://www.niost.org/Afterschool-Matters-Spring-2024/school-staff-perceptions-of-community-afterschool-partnerships).

Sanders, M. G. (2006). Community involvement: Why and what?. In *Building school-community partnerships: Collaboration for Student Success* (pp. 1–13). Corwin Press. <https://doi.org/10.4135/9781452224831.n1>.

Schwartz, S. (2022). Which states have passed “science of reading” laws? What’s in them? *Education Week*, July 20. <https://www.edweek.org/teaching-learning/which-states-have-passed-science-of-reading-laws-whats-in-them/2022/07>.

U.S. Census Bureau. (2025). *QuickFacts*. U.S. Department of Commerce. Retrieved May 28, 2026 from <https://www.census.gov/quickfacts/fact/table/mecklenburgcountynorthcarolina/PST045225#PST045225>.

U.S. News & World Report. (n.d.). *Charlotte Mecklenburg Schools*. Retrieved May 28, 2026 from <https://www.usnews.com/education/k12/north-carolina/districts/charlotte-mecklenburg-schools-102653>.

Valli, L., Stefanski, A., & Jacobson, R. (2016). Typologizing school–community partnerships: A framework for analysis and action. *Urban Education*, 51(7), 719–747. <https://doi.org/10.1177/0042085914549366>.

Wimer, C., Post, M., & Little, P. M. D. (2003). Leveraging resources to promote positive school-CBO relationships. *Afterschool Matters*, 3, 3–21. <https://www.niost.org/Afterschool-Matters-Spring-2004/leveraging-resources-to-promote-positive-school-cbo-relationships>.

Yamauchi, L. A., Ponte, E., Ratliffe, K. T., & Traynor, K. (2017). Theoretical and conceptual frameworks used in research on family-school partnerships. *School Community Journal*, 27(2), 9–34. <http://www.schoolcommunitynetwork.org/SCJ.aspx>.

A group of people are practicing mindfulness meditation in a bright, modern studio. In the foreground, a man with a beard and dark hair is sitting in a lotus position, eyes closed, with his hands resting on his knees in a mudra. Behind him, several other people are also sitting on mats, some with eyes closed and others looking forward. The room has large windows, a wooden floor, and a potted plant in the background.

# Supporting OST Staff Social and Emotional Learning

## Using Mindfulness-Based Professional Development

**Helen Lee, Rachael Hocevar, & Janelle Salcedo**

Youth development practitioners (YDPs)—adults who work with young people in out-of-school time (OST) settings—play a vital role in youth social and emotional learning (SEL). Through mentoring and facilitating programs, YDPs foster safe and supportive spaces where youth can explore their identities, form healthy relationships with other young people and adults, and practice essential life skills such as self-regulation and making responsible decisions (Christensen et al., 2023; Durlak et al., 2010; Durlak & Weissberg, 2007; Hirsch, 2005; Hurd & Deutsch, 2017).

In addition, YDPs are uniquely positioned to develop long-term, trusting relationships with youth, which are foundational to SEL (McDaniel et al., 2015).

The positive impact of afterschool programs on youth development is well established; however, less attention has been given to supporting the SEL of adults leading these programs. Research from K-12 education increasingly shows that when educators strengthen their own social and emotional competencies (SEC), they are better equipped to manage stress, sustain supportive relationships with youth, and create safe learning environments (Jennings & Greenberg, 2009; Jones et al., 2013; Roeser et al., 2013; Schonert-Reichl, 2017). These insights are highly relevant to OST settings, where YDPs are similarly tasked with supporting youth,

---

**HELEN LEE**, PhD, is a senior researcher; **RACHAEL HOCEVAR**, MPH, was a former assistant researcher; and **JANELLE SALCEDO**, BS, BA, is an assistant researcher, all with foundry10 in Seattle, Washington.

often while working with limited resources and access to professional development (Moroney et al., 2025; National Academies of Sciences, Engineering, and Medicine, 2025).

This article responds to a growing call in the field to invest in the development and well-being of YDPs. In our study, we explored the impact of Mindful Me, an eight-week online professional development program grounded in mindfulness and self-compassion. Through participant interviews, we examined how the program shaped YDPs' self-awareness, self-management, social awareness, and relationship skills. Findings highlight how supporting adult SEL can benefit both practitioners and the youth they serve.

### Adult Social and Emotional Learning

SEL is the process through which people develop the knowledge, skills, and attitudes to develop healthy identities, manage emotions, achieve goals, build supportive relationships, and make responsible decisions (CASEL, 2020). Although most SEL initiatives focus on youth, research increasingly underscores the importance of adult SEL in educational and youth-serving settings (e.g., Brackett et al., 2012; Duane et al., 2025; Mahoney et al., 2021; Schonert-Reichl, 2017).

Teachers who develop strong SEC are more likely to report greater job satisfaction, stronger relationships with students, and improved capacity to manage stress and conflict (Jennings & Greenberg, 2009; Roeser et al., 2013; Turner & Theilking, 2021). These skills are especially important for practitioners working in emotionally demanding roles. Research on SEL interventions for teachers has identified several promising approaches that may inform professional development for OST educators: emotion-focused trainings may help educators identify and regulate emotions; relationship-building interventions coupled with coaching, feedback, and additional resources strengthen teacher–student interactions; and mindfulness-based programs improve self-awareness, flexibility, and emotional resilience through contemplative practice (Chang, 2009; Gómez et al., 2023; Jennings & Greenberg, 2009; Jones et al.,

2013, 2019). However, a recent meta-analysis of SEL interventions for teachers found inconsistent associations between certain intervention features (e.g., program length or format) and participant outcomes, suggesting a need for more research into how and why certain interventions work (Oliveira et al., 2021).

Although research on teacher SEL is highly relevant to YDPs, these findings are not always transferable because of differences in training, work demands, and environment. YDPs often enter the field with minimal preparation, limited professional development, and fewer structural supports compared with K-12 teachers (Moroney et al., 2025; National Academies of Sciences, Engineering, and Medicine, 2025). Furthermore, their primary roles, approaches, and settings may differ noticeably. For example, YDPs tend to focus more on holistic development, are less constrained by specific learning objectives and curriculum, and often work with youth in informal educational settings like OST programs and organizations (Larson et al., 2015). These differences point to the need for research that considers how to support the SEL of the OST workforce.

### Unique Context and Challenges of YDPs in OST Settings

YDPs are often the “linchpin” of effective OST programs targeting SEL outcomes (Hurd & Deutsch, 2017). They help youth develop positive identities, meaningful peer relationships, and essential life skills—all while navigating complex and demanding professional conditions. YDPs commonly experience high levels of job stress and burnout, exacerbated by low pay, understaffing, and limited training (National Academies of Sciences, Engineering, and Medicine, 2025; Parry et al., 2024). Despite these challenges, YDPs demonstrate deep dedication to their work and the youth they serve (Moroney et al., 2025; Rhodes, 2004).

Although YDPs recognize SEL as critical to youth development, they often receive little preparation or support around implementing it effectively (Newman, 2020). Effective SEL in OST settings

Teachers who develop strong SEC are more likely to report greater job satisfaction, stronger relationships with students, and improved capacity to manage stress and conflict.

requires intentional investment in the professional learning of the YDPs. Research suggests that staff development should begin with a foundation in good youth development practices and focus on deepening understanding and application of practices that support SEL through training, coaching, and feedback (Blyth et al., 2017; Newman, 2020). Specifically, training should equip YDPs to create safe and supportive environments that foster healthy identities and relationships, as well as nurture the voice, agency, and SEC of youth using developmentally appropriate and culturally responsive practices (Newman, 2020). However, many OST educators lack adequate training and support to enact SEL effectively (Moroney et al., 2025; Parry et al., 2024). Investing in the SEC of YDPs—through accessible, relevant and high-quality professional development—is therefore essential for cultivating a resilient and skilled OST workforce that can meet the needs of youth they work with (Durlak et al., 2010; Moroney et al., 2025; National Academies of Sciences, Engineering, and Medicine, 2025).

## **Mindfulness-Based Professional Development and SEL**

One promising pathway for supporting adult SEL in OST settings is mindfulness-based professional development. Mindfulness—the practice of bringing nonjudgmental awareness to the present moment—has been widely used in school settings to reduce stress, increase emotional regulation, and improve focus (e.g., Colaianne et al., 2020; Emerson et al., 2017; Klingbeil & Renshaw, 2018).

Multi-week programs such as Mindfulness-Based Stress Reduction (MBSR) or Cultivating Awareness and Resilience in Education (CARE) have focused on teaching contemplative practices (e.g., meditation, body scans, yoga), strategies for emotion regulation, and classroom applications (Berger et al., 2022; Jennings et al., 2017). Research shows that mindfulness-based professional development can improve teacher well-being and instructional quality, with some studies noting improved attention and working memory, emotional support for students, and organization of the learning environment (Berger et al., 2022; Jennings et al., 2017; Klingbeil & Renshaw, 2018; Roeser et al., 2013).

**Mindfulness—the practice of bringing nonjudgmental awareness to the present moment—has been widely used in school settings to reduce stress, increase emotional regulation, and improve focus.**

Applying a trauma-informed lens can importantly strengthen mindfulness-based professional development by intentionally pairing mindfulness with research-based psychoeducation about trauma which may facilitate awareness while preventing re-traumatization (Duane et al., 2021). SEL professional development rooted in this approach has been found to improve teachers' knowledge of trauma and adversity, shift how teachers interpret and respond to student behaviors, and strengthen both their self-efficacy and commitment to sustaining their own mindfulness practices (Kim, Crooks & Bax, 2021; King et al., 2021).

These benefits may be even more valuable in OST settings in which practitioners often operate without much training or systematic support. Despite growing evidence for mindfulness-based interventions in school contexts (Brown et al., 2025; Colaianne et al., 2020), relatively few studies have examined how YDPs experience and apply these practices within their unique settings as well as how trauma-informed, mindfulness-based interventions may affect their own SEL development. Our study aims to help address this gap.

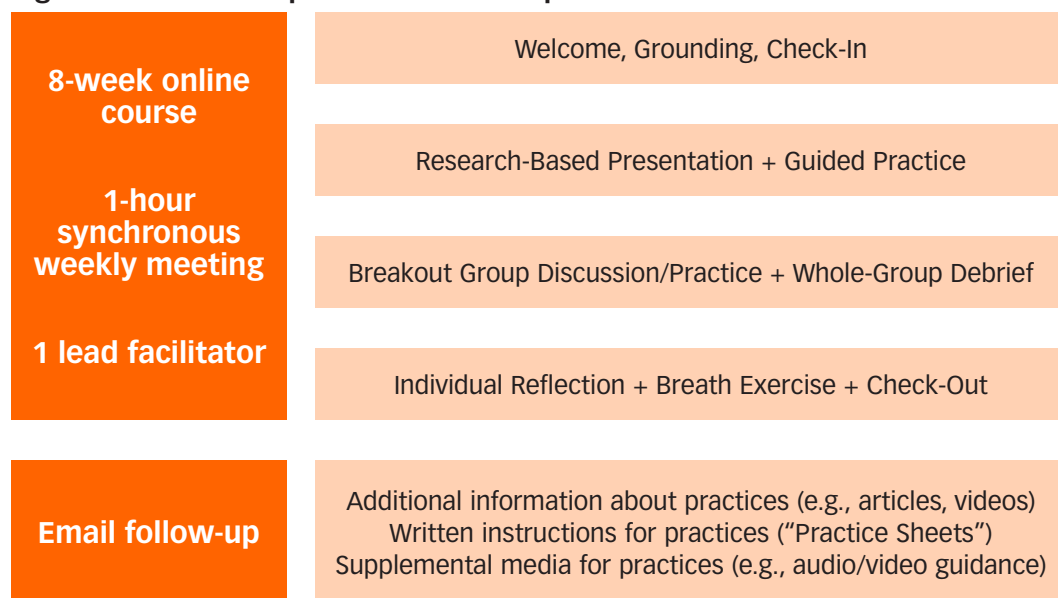
## **Data and Methods**

To address the gap in research on adult SEL in OST settings, we studied the impact of Mindful Me, an eight-week mindfulness-based professional development series for YDPs in Washington state. We explored how the professional development program influenced participants' SEC and what program features had the greatest impact. Through interviews with participants during and after the program, we sought to better understand how mindfulness-based professional development can strengthen the SEL of OST professionals.

### **Program Description**

Mindful Me was offered virtually to OST professionals from January to March 2024. Facilitated by Space Between, a nonprofit that supports trauma-informed, mindfulness-based SEL in schools, and hosted by School's Out Washington, a provider of high-quality professional development for OST practitioners, the program consisted of weekly

**Figure 1. Mindful Me professional development model**



one-hour sessions and followed a cohort-based structure. Each session included grounding exercises, research-informed presentations, guided mindfulness practice, and reflections. Participants regularly engaged in small group discussions about integrating mindfulness-based SEL into their personal and professional lives. Figure 1 presents an overview of the Mindful Me professional development approach.

### Participants

Of the 23 OST professionals who completed the professional development, 14 participated in the study.<sup>1</sup> All study participants identified as women, with an average age of 39 years.<sup>2</sup> The majority of participants identified as White (71%) and reported working directly with youth (57%), with four or more years of experience as YDPs (57%). Most participants (64%) participated in the professional development as the only staff member from their organization. Table 1 summarizes demographic and professional details for each participant.

### Procedures

Researchers collected data during week 4 and week 8 of the professional development program. Twelve

participants were interviewed mid-program, and all 12 plus two additional participants completed end-of-program interviews, for a total of 14 participants.

Prior to each round, the Mindful Me facilitator shared study information verbally and via email with all participants enrolled in the program. Interested participants provided electronic consent and completed a survey on Qualtrics. Participants were then scheduled for an interview. All interviews were conducted on Zoom, mainly in small groups of two to four participants, and lasted approximately one hour each.<sup>3</sup>

Interview questions explored changes in participants' understandings of and approaches to mindfulness, trauma, and self-compassion. Mid-program interviews also inquired about motivation for program participation, and end-of-program interviews asked about impactful professional development program features and suggestions for improvement. All sessions were recorded and transcribed. Throughout the data collection process, researchers engaged in memoing and team discussions to refine questions and track emerging insights.

Data were analyzed using inductive and deductive thematic analysis (Braun & Clarke, 2006). Analysis was guided by a codebook that drew from

<sup>1</sup> Nine participants declined to participate in the first round of focus groups, saying they did not have time to participate or were not interested.

<sup>2</sup> Three participants did not provide their age.

<sup>3</sup> Because of scheduling conflicts, three participants completed individual interviews during the second round.

**Table 1. Participant characteristics**

| Professional Experience Level | Pseudonym | Race/Ethnicity | Age | Occupation                       | Years of Professional Experience | Participating with Colleagues? |
|-------------------------------|-----------|----------------|-----|----------------------------------|----------------------------------|--------------------------------|
| Novice                        | Danielle  | White          | 20  | Youth program administrator      | 1–3                              | No                             |
|                               | Gabriela  | Filipino       | 48  | Youth program staff              | 1–3                              | No                             |
|                               | Adriana   | Latino/a/x     | 25  | Youth program staff              | 1–3                              | No                             |
|                               | Natalie   | White          | N/A | Youth program staff              | 1–3                              | No                             |
|                               | Grace     | White          | 53  | Youth program staff              | 1–3                              | No                             |
|                               | Brooke    | White          | 49  | Family support specialist        | 1–3                              | Yes                            |
| Early career                  | Hannah    | White          | N/A | Youth program staff              | 4–6                              | No                             |
|                               | Chloe     | White          | 45  | Youth program staff              | 4–6                              | No                             |
|                               | Abby      | White          | 43  | K–12 educator or administrator   | 4–6                              | Yes                            |
|                               | Ashley    | White          | 38  | Family support specialist        | 4–6                              | Yes                            |
| Mid-career                    | Lauren    | Black          | 31  | Youth program staff or volunteer | 7–10                             | No                             |
|                               | Michelle  | White          | 45  | Family support specialist        | 7–10                             | Yes                            |
| Experienced                   | Brianna   | Black          | 35  | Youth program administrator      | 16–20                            | Yes                            |
| Veteran                       | Sandy     | White          | N/A | Youth program staff              | 21–25                            | No                             |

the data, existing literature, and the Collaborative for Academic, Social, and Emotional Learning’s framework on SEL (CASEL, 2020). The first two authors coded two transcripts to assess for internal consistency, accuracy, and agreement of coding at the start of the process before independently coding all other transcripts. Throughout the coding process, these two authors, who also designed the study and led interviews, met to discuss and refine themes. In alignment with community-engaged research approaches, preliminary and more developed findings were shared with partnering organizations to ensure

accuracy of interpretation and relevance (Han et al., 2021; Horowitz et al., 2009). Their feedback and insights were incorporated into the development of the themes and implications reflected in this article.

## Results

### *Mindful Me Strengthened Self-Awareness and Self-Management*

Participants shared that the Mindful Me professional development helped them become more attuned to their emotions, thoughts, and physiological states.

They described increased awareness of stress signals, including the presence of tension in their bodies and feelings of being overwhelmed. Hannah, an early-career YDP, noted, “[S]ince starting Mindful Me, I am more aware of my internal monologue and what it is saying to me at any given point when I get overwhelmed [or] if I’m upset about something.”

Participants also reported improvements in their ability to regulate their emotional responses using mindfulness techniques, especially in high-stress moments. For example, the program introduced participants to breathing exercises, body scans, and mindful pauses, which they noted using to manage and productively cope with stress. As Sandy, a veteran practitioner, explained:

[W]hen things go wrong, my mind immediately goes to the negative. ... I blame myself a lot. I don’t give myself a lot of compassion. ... One thing I started doing when things go bad for me [is] reminding myself ... “Hey, this is not in your control. You did your best.” And learning from [that moment] and moving forward.

Several participants shared how the program helped them incorporate practices into daily routines to proactively prevent and reduce stress. For example, Michelle, a mid-career practitioner, mentioned becoming more aware of the stress and cognitive disruption she was experiencing from constantly rushing, and starting to regularly take time before the start of her day to refocus her attention:

[I]t’s made me ... more aware of where I have tension. ... [M]y mornings are my most stressful. ... I’m always rushing ... always hurrying. [W]hen I’m finally at my desk in the morning, [I stop and try] to center myself and really calm down after just rushing and hurrying. [I take] the time to ... use those breaths or [say] something to ... center me and remind me of where I need to be.

Sandy started to integrate mindful breathing and walks outside to help calm herself during busy periods. Another participant, Danielle, a novice YDP, used the “butterfly hug”—a bilateral stimulation technique intended to calm down the nervous system—to regulate herself during a family health emergency: “[It helped

me] become collected again and go back to talking to everybody else and supporting them as well as myself.” Another novice practitioner, Natalie, replaced distracting phone use with a body scan, a meditation technique that promotes awareness of sensations throughout different parts of one’s body. She shared that practicing this technique improved her focus as well as her connection to her mind and body:

“[Now] I will take more time to think about my body and my breath and the sensations that I’m feeling at the moment, the sounds that I hear outside. ... It’s a lot more productive and awareness-producing.”

Participants also emphasized the significance of learning about “habit stacking”—a framework for sustaining new practices—from the program. Around the

middle of the program, Brooke, a novice YDP, shared how this framework of attaching a new practice to an existing habit helped her get into the routine of appreciating what was going well in her life:

[O]ne of the things that I have struggled with is starting something and then getting busy and not putting it into my routine. So one of the things that I’ve really appreciated is the idea of habit stacking and really focusing on building upon habits. Specifically for me, I’m really trying to focus on a gratitude journal and doing that every morning with my coffee so that it’s just something that can be built into my routine.

Brooke continued writing expressions of gratitude each morning and noted at the end of the program that this regular practice helped her move through “a pretty difficult year” with optimism and kindness.

Overall, the program encouraged participants to incorporate and sustain mindfulness practices into their daily routines, which improved their awareness and management of both persistent stressors and unforeseen challenges. These practices boosted participants’ mental well-being. As Sandy shared:

A big trigger for my anxiety is intrusive thoughts and negative thinking. [P]racticing the gratitude and [doing mindful] exercises ... it helps me reset and center myself and ... keep my anxiety under control so it’s manageable and easier to deal with.

Participants reported improvements in their ability to regulate their emotional responses using mindfulness techniques, especially in high-stress moments.

Most significantly, the program helped shift participants' perspectives on mindfulness. Participants described viewing mindfulness practice as more accessible and beneficial than they had initially expected. As Abby, an early-career practitioner, noted:

[T]hat's something huge I think that we learned through this whole process is nothing takes that long, and there's so many different techniques and ... I'm worth it. I can take that personal time. It's so important [and] I need to factor it in.

These reflections indicate that Mindful Me not only enhanced participants' attunement to their internal states but also equipped them with strategies to productively manage stress, regulate emotions, improve focus, and develop sustainable healthy habits. Participant reflections also indicate that the program increased their confidence in being able to respond to and overcome personal and professional challenges.

### **Mindful Me Enhanced Social Awareness and Relationship Skills**

In addition to strengthening self-awareness and self-management, Mindful Me helped participants deepen their connections with others. Many reported being more present, intentional, patient, and empathetic in their interactions with youth, families, and colleagues. Brooke reflected:

[W]hen I'm meeting with my teachers or ... families, [I try] to really focus on what they are telling me [and] their emotions ... instead of thinking about how to solve the problem and what next steps are. ... [T]hese sessions thus far have really helped me ... be really thoughtful about the questions that I want to ask them [and] hear what they're trying to tell me.

In the same focus group, Chloe, an early-career YDP, shared that participating in Mindful Me helped them become more attuned to the needs of those they support as well as their own emotional availability and capacity:

[B]alancing ... "I'm listening to you, I'm here for you" [with] "I actually don't have it in my tank right now to be able to do that" [has] been challenging, but it's also been a real growth for me.

... [I recognize] there is nothing wrong with me turning around and saying, I want to make sure that I give you the time and listen to you. Let's circle back, and let's set up a good time.

For Natalie, regular mindfulness engagement throughout the program has similarly helped her to be more attentive as well as slow down in her conversations with others:

I have been more actively listening when people talk and I haven't been trying to talk over them and finish their sentences. I have been slowing down in conversations. [T]hat's been really helpful with parents and with fellow staff members with kids when they're trying to talk to me. ... I'm not as impatient with them.

Some participants also described deeper compassion for others as well as themselves, especially during challenging moments. Danielle reflected on a recurring message in the program of practicing self-compassion as a foundation for working with others:

If I can't treat myself with kindness and keep myself calm and collected, how am I going to do that for a hundred other kids every day? [T]hat statement just stands in my mind in moments ... where I'm like, "Okay, wait, there's a lot going on." This is how I feel, but I'm pushing that towards the kids now, even though I might not be intentionally trying to do that.

Others echoed the value of exercising self-compassion in relation to recognizing their limits. For example, Abby shared:

I think it's really, really important to reflect and realize where are you right now [especially] before I go into [a] really high-stressful [sic] meeting. ... [W]e do give so much and we care so deeply about these families [and we want to] fix everything for them, but [we need] to understand there's only so many things that we can do.

Participants also spoke about the deeper joy and presence they experienced because of these relational

**In addition to strengthening self-awareness and self-management, Mindful Me helped participants deepen their connections with others.**

shifts. Brianna, an experienced practitioner, reflected: “I find myself enjoying being in the space with the youth more ... listening to them and just being engaged in conversations with them and just seeing their personalities and seeing them grow.”

These reflections illustrate the ways in which Mindful Me fostered more intentional relational practices. Participants reported better active listening, recognizing their own emotional and cognitive limits, and extending compassion to themselves and others in high-stress moments. These interpersonal changes contributed to more emotionally responsive professional interactions and strengthened relationships between participants and those they serve.

### **Mindful Me Inspired Changes to Planning and Facilitation**

The program also inspired interpersonal shifts in how participants lead programs with youth. Some participants reported trying out new practices or adapting existing mindfulness practices to be more trauma-informed in their programs, whereas others mentioned being inspired to incorporate new practices. For example, Danielle began using the “butterfly hug” not only for her own regulation but also to support youth who “tend to get overstimulated”:

I’ve been using ... the butterfly approach ... to bring them back to where we are [and] take a break without having to say, “Hey, let’s just go sit and be quiet and take a few deep breaths.” It’s more interactive and that’s been really helping them.

Among those already facilitating mindfulness practices, the program offered new techniques and approaches. For example, Lauren, a mid-career practitioner, incorporated the rainforest breath (a student-created breathing practice the program facilitator had shared during one of the sessions), gratitude activities, and youth leadership opportunities into her “Mindful Wednesdays” programming with youth. She also directed colleagues to resources on integrating mindfulness into their programs. These efforts seemed to help “overstimulated” youth refocus during their transition from school to the afterschool program.

Participants also gained a deeper awareness of trauma-informed facilitation, specifically how

traumatic experiences may affect young people’s responses to mindfulness activities. Grace, a novice YDP, shared how she had “never thought a kid closing their eyes might be scary” until the instructor mentioned trauma-aware alternatives to certain practices. Natalie echoed this insight:

Before Mindful Me, I hadn’t really considered [trauma] much. [I]n my life it’s just something that happens and then you just figure it out and ... move on. [T]he Mindful Me series has brought it more to my attention ... and brought more patience for ... moments when a child might be dealing with some sort of PTSD or a coping problem. ... I’m definitely more understanding now.

Although several participants had already integrated mindfulness practices into their facilitation by the end of the professional development program, some participants had not yet done so but expressed enthusiasm and clear intentions to begin, which is reflected in what Ashley, an early-career practitioner, shared:

[L]ast week ... [the professional development facilitator] shared the rainforest breath and ... having the kids [come] up with their own mindful practices and exercises. I really loved that idea. ... [E]ventually, I will be working with ... teachers to encourage them to do that within the classrooms and letting the kids come up with their own mindful exercises and breathing exercises.

These examples illustrate how Mindful Me influenced participants’ own SEC but also provided them with tools for working with youth. Participants reported being more present, patient, and empathetic in their interactions with youth, families, and colleagues—as well as more attuned to the needs of others and better equipped to meet those needs. In addition, the program brought renewed purpose and joy to their work with youth.

### **Research-Based Content, Self-Compassion, and Sense of Community Enriched Participants’ SEL**

Participants identified three key program elements that enhanced their mindful-based SEL: research-informed content, self-compassion practices, and structured opportunities to connect with and learn from other YDPs.

**Research-informed content** helped participants understand how mindfulness practices affect the brain and body. Several appreciated learning about the science behind trauma and stress, including the role of the nervous system. “[T]hat was very eye-opening,” Lauren shared. “[It helped me] understand [how] trauma can ... affect the way you make decisions and why you ... perceive things a certain way ... and how you really have to train your brain to undo [the fight-or-flight response].”

**Self-compassion** emerged as another key element for starting and sustaining mindfulness practice: A number of participants shared that the emphasis on practicing kindness toward oneself made them more aware of self-judgment and better equipped to extend compassion during difficult moments. Danielle shared: “How we treat ourselves affects how we treat others. That stays in my mind when I’m overwhelmed.” At the end of the program, she added: “I’m feeling less negativity not only toward myself but also ... toward others ... and it’s a lot easier to handle harder situations.”

The **professional learning community** was also another powerful component of the professional development experience. Participants overwhelmingly valued the cohort-based format and learning from other YDPs. Michelle shared:

[I]t’s really interesting to hear what other individuals are doing in their programs. ... [T]he breakout rooms in particular have been really nice spaces to ... dialogue about what’s working ... and what’s not ... and just understanding the different dynamics associated with [different ages and being] able to bounce ideas off of others that are working with youth.

Brianna similarly shared appreciation for the opportunity to learn from and “meet other professionals that work in the same field.” Those who participated alongside colleagues from the same organization noted that this enriched their learning. For example, Michelle and Ashley both mentioned how useful it was to be able to debrief with their colleagues after each session.

Others described the cohort itself as a valuable

source of emotional support. Chloe, who mentioned how isolating the work can sometimes be, said: “What I really loved about it is that ... over that time we got to know each other, and it created a little niche of community support.”

Together, these program elements—evidence-based content, compassion-centered practices, and a supportive peer community—enhanced participants’ learning and helped them practice mindfulness in their personal and professional lives.

## Discussion

This study adds to the growing recognition that supporting the SEL of YDPs is critical to the impact of OST programs. Findings from this project demonstrate that mindfulness-based professional development can meaningfully enhance adult SEL, particularly in building self-awareness, self-management, and relational capacity. These competencies are especially relevant to YDPs, who often work in high-stress environments with limited training and systemic support. As participants noted, learning about and practicing mindfulness and self-compassion strategies within a supportive professional learning community improved their attention, patience, empathy, and self-regulation, which enhanced interactions with youth and colleagues while also reducing feelings of isolation.

**Mindfulness-based professional development can meaningfully enhance adult SEL, particularly in building self-awareness, self-management, and relational capacity.**

Mindful Me also inspired participants’ program planning and facilitation. Some integrated mindfulness practices into daily routines with youth, adapted prior practices to be more trauma informed, and supported colleagues in using mindfulness practices in their programs. Most importantly, the emphasis on self-compassion helped shift how YDPs view

and treat themselves, laying a foundation for more compassionate engagement with youth and families. These outcomes point to dual benefits of adult SEL professional development—promoting practitioners’ self-efficacy and resilience while also expanding their toolkits for supporting youth in programs.

## Implications

The professional development approach of Mindful Me—which was grounded in contemplative practice,

peer learning and connection, and evidence-based content—appeared particularly impactful. Participants appreciated that sessions were relevant to their personal lives and professional work, balanced research and practice, and fostered a sense of community with a diverse cohort of practitioners. These features offer important considerations for future virtual professional development program design for OST professionals—specifically that reflective, relational spaces that prioritize adult skill-building and well-being are invaluable.

### Limitations

This study offers promising insights, but several limitations should be acknowledged. First, the sample size was small ( $N = 14$ ) and limited to practitioners in Washington state who voluntarily opted into both the professional development program and the research. As such, findings may not be generalizable to all OST professionals, particularly those who typically choose not to participate in such opportunities. Most participants identified as White and all as women, suggesting the need to investigate how mindfulness-based professional development programs may affect more demographically diverse YDP populations.

In addition, all data were self-reported and collected through group and individual interviews. Although these accounts offer rich insight into participants' experiences, they may be influenced by social desirability bias or confirmation bias, even with efforts to mitigate such biases (e.g., using neutral language, collecting multiple sources of data, being aware of our own biases, seeking disconfirming evidence, gathering feedback from partnering organizations). Future studies should complement self-reports with observational data or youth insights to better understand how mindfulness-based interventions for OST staff translate into adult SEL growth and youth engagement and outcomes.

Finally, although several participants described adopting new practices or planning to incorporate mindfulness strategies, the study did not include follow-up interviews to assess sustained changes after program completion. Longitudinal research is needed to examine whether and how mindfulness-based professional development programs will continue to

shape well-being and practice after the conclusion of the programs.

### Recommendations

Despite these limitations, the study offers several recommendations for OST stakeholders interested in cultivating adult SEL:

**1. Integrate SEL into professional development for YDPs.** Programs like Mindful Me show that short, structured, and reflective professional development programs can be meaningful and accessible. SEL support for adults should be viewed as foundational to high-quality youth programming.

**2. Apply a trauma-informed lens.** Professional development programs should help YDPs recognize how trauma—both their own and the trauma of those they support—may show up in their work. Professional development should also support them in adapting practices to avoid re-traumatization and ensure that programs remain inclusive, safe, and responsive to participants.

**3. Center self-compassion.** Stress and burnout are common among YDPs. Embedding self-compassion practices

into professional development can encourage kindness and a balanced perspective during challenging moments, which has been linked to improved well-being (Neff, 2023).

**4. Foster professional learning communities.** The cohort-based model of Mindful Me helped reduce professional isolation while fostering peer learning. OST providers should prioritize professional development that builds relational trust and creates opportunities for staff to learn from one another across roles and sites.

**5. Design to sustain practices.** Participants valued strategies like habit stacking that made it easier to incorporate mindfulness practices into their routines. Professional development should not only support skill development but also offer approaches to help new practices stick.

As the OST field continues to prioritize SEL, more attention must be given to the development of the adults who make this work possible. When YDPs feel emotionally resourced, supported, and confident in navigating everyday challenges, they

SEL support for adults should be viewed as foundational to high-quality youth programming.

are better prepared to model and nurture SEC for youth. Investing in adult SEL not only promotes practitioner well-being, but also strengthens the field by cultivating a more resilient, compassionate, and effective workforce—one that is better equipped to help youth thrive.

## Acknowledgments

We extend our deep gratitude to the Mindful Me program participants for generously sharing their experiences. We also thank Space Between and School's Out Washington for their partnership in this project and commitment to supporting the professional growth and well-being of OST practitioners. We are especially grateful to the Mindful Me program facilitator, as well as former and current co-directors of Space Between—Kim Armstrong, Kara-Lee Ruotolo, Damithia Nieves, and Nicole Sirivansanti—for their leadership and dedication to this collaboration.

## References

- Berger, E., Reupert, A., Campbell, T., Morris, Z., Hammer, M., Diamond, Z., Hine, R., Patrick, P., & Fathers, C. (2022). A systematic review of evidence-based wellbeing initiatives for schoolteachers and early childhood educators. *Educational Psychology Review*, 34. <https://doi.org/10.1007/s10648-022-09690-5>.
- Blyth, D., Olson, B., & Walker, K. (2017). Intentional practices to support social & emotional learning. University of Minnesota Extension, Youth Development Issue Brief, January 2017. <https://hdl.handle.net/11299/195178>.
- Brackett, M. A., Reyes, M. R., Rivers, S. E., Elbertson, N. A., & Salovey, P. (2012). Assessing teachers' beliefs about social and emotional learning. *Journal of Psychoeducational Assessment*, 30(3), 219–236. <https://doi.org/10.1177/0734282911424879>.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77–101. <https://doi.org/10.1191/1478088706qp063oa>.
- Brown, J. L., Jennings, P. A., Rasheed, D. S., Cham, H., Doyle, S. L., Frank, J. L., Davis, R., & Greenberg, M. T. (2025). Direct and moderating impacts of the CARE mindfulness-based professional learning program for teachers on children's academic and social-emotional outcomes. *Applied Developmental Science*, 29(1), 14–33. <https://doi.org/10.1080/10888691.2023.2268327>.
- CASEL. (2020). CASEL'S SEL Framework: What are the core competence areas and where are they promoted? <https://casel.s3.us-east-2.amazonaws.com/CASEL-SEL-Framework-11.2020.pdf>.
- Chang, M.-L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review*, 21, 193–218. <https://doi.org/10.1007/s10648-009-9106-y>.
- Christensen, K. M., Kremer, K. P., Poon, C. Y. S., & Rhodes, J. E. (2023). A meta-analysis of the effects of after-school programmes among youth with marginalized identities. *Journal of Community & Applied Social Psychology*, 33(4), 882–913. <https://doi.org/10.1002/casp.2681>.
- Colaianne, B. A., Galla, B. M., & Roeser, R. W. (2020). Perceptions of mindful teaching are associated with longitudinal change in adolescents' mindfulness and compassion. *International Journal of Behavioral Development*, 44(1), 41–50. <https://doi.org/10.1177/0165025419870864>.
- Duane, A., Casimir, A. E., Mims, L. C., Kaler-Jones, C., & Simmons, D. (2021). Beyond deep breathing: A new vision for equitable, culturally responsive, and trauma-informed mindfulness practice. *Middle School Journal*, 52(3), 4–14. <https://doi.org/10.1080/00940771.2021.1893593>.
- Duane, A. M., Hafen, Q., McVeagh-Lally, P., & Shapiro, V. B. (2025). “It all starts with us”: Exploring teachers' efforts to increase adult SEL in practice. *Social and Emotional Learning: Research, Practice, and Policy*, 5, 100085. <https://doi.org/10.1016/j.sel.2025.100085>.
- Durlak, J. A., & Weissberg, R. P. (2007). *The impact of after-school programs that promote personal and social skills*. Collaborative for Academic, Social, and Emotional Learning. <https://eric.ed.gov/?id=ED505368>.
- Durlak, J. A., Weissberg, R. P., & Pachan, M. (2010). A meta-analysis of after-school programs that seek to promote personal and social skills in children and adolescents. *American Journal of Community Psychology*, 45(3–4), 294–309. <https://doi.org/10.1007/s10464-010-9300-6>.

- Emerson, L.-M., Leyland, A., Hudson, K., Rowse, G., Hanley, P., & Hugh-Jones, S. (2017). Teaching mindfulness to teachers: A systematic review and narrative synthesis. *Mindfulness*, 8, 1136–1149. <https://link.springer.com/article/10.1007/s12671-017-0691-4>.
- Gómez, J. A., Brown, J. L., & Downer, J. T. (2023). High-quality implementation of 4Rs + MTP increases classroom emotional support and reduces absenteeism. *Frontiers in Psychology*, 14. <https://doi.org/10.3389/fpsyg.2023.1065749>.
- Han, H.-R., Xu, A., Mendez, K. J. W., Okoye, S., Cudjoe, J., Bahouth, M., Reese, M., Bone, L., & Dennison-Himmelfarb, C. (2021). Exploring community-engaged research experiences and preferences: A multi-level qualitative investigation. *Research Involvement and Engagement*, 7(1), 19. <https://doi.org/10.1186/s40900-021-00261-6>.
- Hirsch, B. J. (2005). *A place to call home: After-school programs for urban youth*. American Psychological Association (pp. xi, 163). <https://doi.org/10.1037/11087-000>.
- Horowitz, C. R., Robinson, M., & Seifer, S. (2009). Community-based participatory research from the margin to the mainstream: Are researchers prepared? *Circulation*, 119(19), 2633–2642. <https://doi.org/10.1161/circulationaha.107.729863>.
- Hurd, N., & Deutsch, N. (2017). SEL-focused after-school programs. *The Future of Children*, 27(1), 95–116. <https://doi.org/10.1353/foc.2017.0005>.
- Jennings, P., Brown, J., Frank, J., Doyle Fosco, S., Oh, Y., Davis, R., Rasheed, D., DeWeese, A., DeMauro, A., Cham, H., & Greenberg, M. (2017). Impacts of the CARE for Teachers program on teachers' social and emotional competence and classroom interactions. *Journal of Educational Psychology*, 109(7), 1010–1026. <https://doi.org/10.1037/edu0000187>.
- Jennings, P., & Greenberg, M. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79(1), 491–525. <https://doi.org/10.3102/0034654308325693>.
- Jones, S. M., Bouffard, S. M., & Weissbourd, R. (2013). Educators' social and emotional skills vital to learning. *Phi Delta Kappan*, 94(8), 62–65. <https://doi.org/10.1177/003172171309400815>.
- Jones, S. M., McGarrah, M. W., & Kahn, J. (2019). Social and emotional learning: A principled science of human development in context. *Educational Psychologist*, 54(3), 129–143. <https://doi.org/10.1080/00461520.2019.1625776>.
- Kim, S., Crooks, C. V., Bax, K., & Shokoohi, M. (2021). Impact of Trauma-Informed Training and Mindfulness-Based Social-Emotional Learning Program on Teacher Attitudes and Burnout: A Mixed-Methods Study. *School Mental Health*, 13(1), 55–68. <https://doi.org/10.1007/s12310-020-09406-6>.
- King, L. M., Lewis, C., Ritchie, D. M., Carr, C., & Hart, M. W. (2021). Implementation of a teacher-led mindfulness program in a low-income pre- and early-elementary school as part of a trauma-responsive, resilience-building community initiative. *Journal of Community Psychology*, 49(6), 1943–1964. <https://doi.org/10.1002/jcop.22557>.
- Klingbeil, D. A., & Renshaw, T. L. (2018). Mindfulness-based interventions for teachers: A meta-analysis of the emerging evidence base. *School Psychology Quarterly*, 33(4), 501–511. <https://doi.org/10.1037/spq0000291>.
- Larson, R. W., Walker, K. C., Rusk, N., & Diaz, L. B. (2015). Understanding youth development from the practitioner's point of view: A call for research on effective practice. *Applied Developmental Science*, 19(2), 74–86. <https://doi.org/10.1080/10888691.2014.972558>.
- Mahoney, J. L., Weissberg, R. P., Greenberg, M. T., Dusenbury, L., Jagers, R. J., Niemi, K., Schlinger, M., Schlund, J., Shriver, T. P., VanAusdal, K., & Yoder, N. (2021). Systemic social and emotional learning: Promoting educational success for all preschool to high school students. *American Psychologist*, 76(7), 1128–1142. <https://doi.org/10.1037/amp0000701>.
- McDaniel, S. C., Yarbrough, A.-M., & Besnoy, K. (2015). Research-Based Practices in Afterschool Mentoring Programs. *Afterschool Matters*, Fall, 37–44. <https://www.niost.org/Afterschool-Matters-Fall-2015/research-based-practices-in-afterschool-mentoring-programs>.
- Moroney, D., Brown, M. E. M., Diffenderffer, A. E., Vasudevan, D. S., Richter, J. Y., Carroll, R., Syvertsen, A. K., & Tasayco Prado, G. N. (2025). *Power of Us: The Youth Fields Workforce Findings from the National Power of Us Workforce Survey*. American Institutes for Research. <https://doi.org/10.59656/yd-g3634.001>.

National Academies of Sciences, Engineering, and Medicine. (2025). *The future of youth development: building systems and strengthening programs*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27833>.

Neff, K. D. (2023). Self-compassion: Theory, method, research, and intervention. *Annual Review of Psychology*, 74, 193–218. <https://doi.org/10.1146/annurev-psych-032420-031047>.

Newman, J. Z. (2020). Supporting the out-of-school time workforce in fostering intentional social and emotional learning. *Journal of Youth Development*, 15(1), 239–265. <https://doi.org/10.5195/jyd.2020.807>.

Oliveira, S., Roberto, M. S., Pereira, N. S., Marques-Pinto, A., & Veiga-Simão, A. M. (2021). Impacts of social and emotional learning interventions for teachers on teachers' outcomes: A systematic review with meta-analysis. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.677217>.

Parry, B. J., Stephens, L., Garst, B., Melton, T., Bowers, E., & Johnson, K. (2024). *Youth-serving professionals' experiences of working through the Covid-19 pandemic: A scoping review*. Elsevier BV. <https://doi.org/10.2139/ssrn.4926744>.

Rhodes, J. E. (2004). The critical ingredient: Caring youth-staff relationships in after-school settings. *New Directions for Youth Development*, 2004(101), 145–161. <https://doi.org/10.1002/yd.75>.

Roeser, R., Schonert-Reichl, K., Jha, A., Cullen, M., Wallace, L., Wilensky, R., Oberle, E., Thomson, K., Taylor, C., & Harrison, J. (2013). Mindfulness training and reductions in teacher stress and burnout: Results from two randomized, waitlist-control field trials. *Journal of Educational Psychology*, 105(3), 787–804. <https://doi.org/10.1037/a0032093>.

Schonert-Reichl, K. A. (2017). Social and emotional learning and teachers. *The Future of Children*, 27(1), 137–155. <https://doi.org/10.1353/foc.2017.0007>.

Turner, K., & Theilking, M. (2021). Teacher wellbeing: Its effects on teaching practice and student learning. *Issues in Educational Research*, 29(3), 938–960. <https://search.informit.org/doi/abs/10.3316/informit.641930197632835>.

A photograph of a woman with dark curly hair, wearing a purple long-sleeved shirt, and a young girl with dark curly hair, wearing a light blue shirt and denim overalls. They are both smiling and looking at an open book with a blue cover. The background is a blurred green outdoor setting.

# Impact of the Summer Reading Explorers Program on Hispanic/Latinx Dual Language Learners

**Maria C. Morales, Elsa Bravo, Orlena Ramirez, Laura Gomez, Angela Waguespack, & Katie C. Hart**

Hispanic/Latinx students make up a significant portion (29%) of the education system (NCES, 2024). Many of these students are dual language learners (DLLs), with Spanish being the home language for 74% of DLLs (U.S. Department of Education, NCES, 2018).

DLLs are students who are acquiring two languages with varying proficiency levels (Crosnoe & López-Turley, 2011; Paradis et al., 2021); their literacy development often differs from their monolingual peers. For example, DLLs may be more advanced in one or both languages or show an imbalance in their literacy skills across languages (Paradis et al., 2021). Unfortunately, national reading scores for DLLs have declined in recent years, with national estimates showing that these students have performed significantly below the National Assessment of Educational Progress basic level (U.S. Department of

Education, NCES, 2024). This is concerning, given links between literacy and school graduation rates, job opportunities, and health outcomes (Berkman et al., 2011; Duncan et al., 2007; Ritchie & Bates, 2013). Although national standards and assessment policies have advanced supports for DLLs, additional efforts are needed. Out-of-school programming, particularly summer programming, may be a promising avenue to provide this additional support.

Children spend a significant amount of time out of school, particularly during summer months in

---

**MARIA C. MORALES**, MS, doctoral candidate; **ELSA BRAVO**, PhD, research assistant professor; **ORLENA RAMIREZ**, MEd, program coordinator; **LAURA GOMEZ**, MEd, senior program coordinator; and **KATIE C. HART**, PhD, associate professor of psychology, are with the Center for Children and Families, Department of Psychology, Florida International University. **ANGELA WAGUESPACK**, PhD, is a professor in the Department of Clinical and School Psychology, Nova Southeastern University.

the United States. Research has shown that literacy achievement gaps tend to widen the most during the summer, a phenomenon termed *summer learning loss* (SLL) by Heyns (1978) and further conceptualized through a comprehensive research synthesis by Cooper et al. (2000). Using a large national database of more than 2 million test scores, Atteberry and McEachin (2021) found that, on average, students lose about 7 English language arts test score points in the summer following first grade, 4 points after second grade, and 3 points after third grade, with losses decreasing to 0.9 points before eighth grade. These findings illustrate that students typically experience greater losses in earlier grade levels. Atteberry and McEachin (2021) also highlight significant variability in summer learning losses, which accumulate over time and lead to sizable academic impacts. Factors such as race and socioeconomic status contribute to academic disparities, but they explain only a small portion of the overall variability, underscoring the need to explore other influences on student achievement. Given the significant role of summer in widening academic gaps, targeted interventions like summer reading programs may help mitigate these disparities.

### Summer Reading Programs

Summer reading programs are out-of-school interventions that typically focus on maintaining or improving academic gains (Dujardin et al., 2022). Strong evidence supports their effectiveness in preventing summer learning loss in literacy skills. In their meta-analysis spanning 13 years from 1998 through 2011 and covering kindergarten through eighth grade, Kim and Quinn (2013) found that classroom and home-based summer programming helped significantly improve multiple reading outcomes (e.g., reading comprehension, fluency, and vocabulary) for participating students compared to those in control groups. The magnitude of treatment gains was greater for children from low-income backgrounds who received intensive, evidence-based reading instruction and had teacher and parent involvement in reading activities (Kim & Quinn, 2013).

Literacy achievement gaps tend to widen the most during the summer, a phenomenon termed summer learning loss.

More recently, following the work of Kim and Quinn (2013), Dujardin et al. (2022) reviewed 16 summer reading programs from 2012 through 2021. Their work found that summer reading programs resulted in reading improvements or, at minimum, helped sustain existing knowledge. The authors noted great variability in the types of summer programming offered across studies (e.g., program duration, instruction time, content). For instance, programs ranged from 2 weeks to 8 weeks, and session timing varied across the board (e.g., 2–4 hours per day). Some programming targeted only reading; others included writing and math or incorporated social-emotional learning and provided behavioral support. Most of the studies highlighted in this review included small-group instruction (e.g., 3–5 students per group); a few included one-on-one tutoring. The authors concluded that programs with intensive instruction, parent engagement (e.g., parents trained to support or facilitate literacy activities), and individual tailoring yielded the best results in student gains. Summer programs appear to be uniquely positioned to provide educational instruction to students and have been shown to have positive effects on their literacy skills. However, few studies included in Kim and Quinn’s (2013) and Dujardin et al.’s (2022) reviews consisted of students explicitly defined as Hispanic/Latinx DLLs. Understanding the impact of summer programs on Hispanic/Latinx DLLs is critically important to support this student population in the summer to intervene and prevent the accumulation of SLL.

### Dual Language Learners

DLLs represent a diverse group with varied linguistic, cultural, and socioeconomic backgrounds. (As children enter formal schooling, these learners are often reclassified as English language learners [ELLs], a term more commonly used in K-12 educational contexts to describe students who are in the process of acquiring English proficiency and may require language support services.) Early experiences shape DLLs’ academic development, particularly in language and literacy. In terms of reading development

for DLLs, best practices in reading instruction have focused largely on five core foundational reading skills: phonemic awareness, phonics, vocabulary, fluency, and comprehension, which have extensive empirical support (Lonigan et al., 2008; Foorman et al., 2016). Some work suggests that these core skills benefit DLLs and ELLs in their English literacy development (Farver et al., 2009; Foorman et al., 2016; Goldenberg, 2020). However, stakeholders continue to debate how these core foundational skills should be adapted for different student populations to also address other critical aspects of children's development such as cultural identity and sense of belonging (Harkness & Super, 2020). For example, a recent report using national qualitative data found that educators believed that DLLs were missing opportunities for oral language development owing to additional phonics instruction, and that some programs lacked culturally inclusive and relevant materials (Escamilla & Strong, 2024).

Despite limited research on the efficacy and effectiveness of summer programs for DLLs, existing research provides some support for the benefits of structured reading interventions following evidence-based curricula focused on these core foundational skills. These interventions are characterized by time-intensive and small-group instruction (Beach & Traga Philippakos, 2020; Schmitt et al., 2019). For instance, Beach and Traga Philippakos (2020), whose sample consisted of second- and third-grade children reading below grade level, of whom half (51%) were ELLs, found that Sound Partners, a summer program using a curriculum based on teaching foundational reading skills, delivered in student pairs for two hours a day for 21 days (for a total of 42 hours of intervention), showed moderate to large effects on children's oral reading fluency post-intervention (Vadasy & Sanders, 2010). Further, Schmitt et al. (2019), in a sample of kindergarten through fourth-grade ELLs, found that participation in a six-week educational summer program was positively associated with diagnostic reading test scores in the fall, indicating a possible link between summer instruction and subsequent English literacy performance. They found small effects on language and literacy skills post-intervention.

Overall, these findings are promising, yet a

Individual tailoring  
yielded the best results in  
student gains.

critical need remains for further research to assess the effectiveness of structured summer reading interventions for young Hispanic/Latinx DLLs who are learning English. Whereas previous studies have emphasized intensive individualized tutoring models for students, the current project expands this line of research by examining the effectiveness of a community-based intervention designed for targeted small-group delivery with children in kindergarten through second grade. This approach addresses a critical gap in understanding how scalable early literacy interventions can support younger DLLs during a pivotal stage in reading development. Recent scholarship has also emphasized the importance of directing research efforts toward understanding DLLs' unique developmental trajectories and identifying instructional practices that are inclusive of their linguistic and cultural needs (Escamilla & Strong, 2024; Hoffman et al., 2021).

## Current Study

The current study examines the promise of a structured eight-week-long summer reading intervention, the Summer Reading Explorers Program (SREP), specifically examining (1) the average growth rate of children's grade-level oral reading fluency (ORF) skills in English and (2) whether children had significant growth from pre- to post-intervention over the course of the summer program, while accounting for factors thought to be related to children's response to intervention and literacy skill development: intervention attendance, receptive vocabulary, student exceptionality, family income, and parent education. In addition, we examined (3) the feasibility and (4) the acceptability of the program, using intervention session attendance records and parent satisfaction ratings.

We hypothesized that students participating in the SREP would make a minimum increase of 4 points on their grade-level fluency measure over the course of the summer, demonstrating two months' progress and considered a modest improvement on this measure of ORF (STEEP Learning, 2007). We also hypothesized that children's reading scores would show significant growth from pre- to post-intervention. In addition,

we hypothesized that the program would be feasible to implement based on session attendance, 80% of children would receive the recommended dose of intervention, and caregivers would endorse overall satisfaction with the SREP demonstrating the acceptability of the program.

## Method

### Study Participants and Procedures

Florida International University's Institutional Review Board approved all study procedures. Data for this project were collected as part of the larger SREP, a community-based summer reading intervention program serving more than 1,200 children every year and with 67% of participants in 2024 identifying as Hispanic/Latinx. The SREP is housed within summer programs held at various locations (e.g., parks, schools, churches, community centers) across a county in an urban, southeastern city in the United States. Summer programs are selected to participate in SREP based on funding status. Every rising kindergarten (RK), first-grade (R1), and second-grade (R2) child enrolled in these designated summer programs is eligible to participate in SREP. However, only students reading at or below grade level based on the pre-assessment participate in structured small group interventions. Data for this project used a subsample from the larger 2024 program implementation year and included only students who qualified for intervention, were exposed to Spanish at home, and spoke Spanish, according to caregiver reports. The final sample for this study consisted of rising kindergarteners ( $N = 188$ ), first-graders ( $N = 265$ ), and second-graders ( $N = 86$ ), for a total sample of 539. Most participants self-identified as Hispanic/Latino (93%). A majority of caregivers also reported that their child always hears and speaks Spanish in the home (93% and 90%, respectively). (For additional demographic information, see Table 1.) Caregivers interested in participating were provided an informed consent document in their preferred language before partaking in the study. Parents received a free book for their child at program enrollment and free reading services if they were eligible for intervention.

**Table 1. Demographics for study sample ( $N = 539$ )**

| Demographic                       | $N$ | %             |
|-----------------------------------|-----|---------------|
| <b>Grade</b>                      |     |               |
| Rising kindergarten               | 188 | 39.87%        |
| Rising first grade                | 265 | 49.16%        |
| Rising second grade               | 86  | 15.95%        |
| <b>Parental education</b>         |     |               |
| Less than 12th grade              | 50  | 9.27%         |
| High school diploma/GED           | 216 | 40.07%        |
| Some college                      | 43  | 7.97%         |
| Associate's degree                | 70  | 12.98%        |
| Bachelor's degree                 | 83  | 15.39%        |
| Graduate degree                   | 65  | 12.05%        |
| <b>Income</b>                     |     |               |
| Low                               | 455 | 84.41%        |
| Middle                            | 30  | 5.56%         |
| High                              | 10  | 1.85%         |
| <b>Child's language</b>           |     |               |
| Always hears Spanish              | 498 | 93.00%        |
| Always speaks Spanish             | 486 | 90.16%        |
| <b>Language spoken most often</b> |     |               |
| English                           | 0   | 0.00%         |
| Spanish                           | 393 | 72.91%        |
| Mix of the two                    | 146 | 27.08%        |
| <b>Student exceptionality</b>     |     |               |
| Exceptionality endorsed           | 111 | 20.74%        |
| Exceptionality not endorsed       | 428 | 79.40%        |
| <b>PPVT standard score</b>        |     | <b>M (SD)</b> |
| RK                                | 184 | 70.21 (12.56) |
| R1                                | 260 | 76.40 (13.48) |
| R2                                | 85  | 75.97 (11.25) |

M = mean; SD = standard deviation. PPVT standard scores for the sample are considered low. Demographic percentages were calculated using available data. Missing data were present for 2.2% of parent education, 7.98% of income, 1.11% of child language, 0.74% of languages spoken most often, and 1.85% of PPVT standard score.

## Intervention Description

Families were recruited at participating sites and completed the consent form and the registration form. To determine eligibility for small group instruction, curriculum-based measurement probes from a commercially available source (Integrated System to Enhance Educational Performance [iSTEEP]; STEEP Learning, 2007) were used at the beginning and end of the summer program (after 18 or more sessions of intervention). The assessment was completed in a standardized manner and delivered in English to match the language of instruction. Rising kindergarten and first-grade children received two different letter name and letter sound probes. Rising second-graders received a word reading probe. Based on their performance on the ORF, children were classified into one of three categories using grade-based benchmarks: *frustrational* (below grade level), *instructional* (at grade level), or *mastery* (above grade level). Children in the frustrational and instructional ranges participated in the intervention for six weeks over the course of the eight-week program. The first and final weeks focused on screening and outcome assessments. SREP used small-group (no more than five children per group) instruction led by trained reading interventionists, who were primarily certified teachers in the state of Florida, following one of two evidence-based curricula (*Proactive Reading*, Mathes et al., 2005; *Literacy Express*, Lonigan et al., 2005). These curricula focus on foundational literacy skills: phonemic awareness, phonics, vocabulary, fluency, and comprehension. The curricula are yearlong curricula, which were adapted in consultation with the intervention developers to be provided in a six-week timeframe and to bridge the summer between grade levels. Rising kindergarten and first-grade children received the reading intervention four to five days a week (as determined by camp field trip schedule) for 30 minutes each, whereas frustrational rising second-graders received the intervention for 45 minutes a day, four to five days per week. All children were eligible to receive up to 24 sessions of intervention over the course of the summer, for a maximum dose of intervention ranging from

Children were classified into one of three categories using grade-based benchmarks: *frustrational* (below grade level), *instructional* (at grade level), or *mastery* (above grade level).

12 to 18 hours, depending on grade level. To assess English receptive vocabulary knowledge, the Peabody Picture Vocabulary Test (PPVT; Dunn, 2019) was administered by trained staff to all participating children at the start of the intervention (i.e., within the first two weeks of the intervention).

The intervention was delivered in English to support English literacy development. However, there was a large focus on recruiting and hiring staff with many years of experience working within the different regions in the county and representing the diversity in racial, ethnic, and linguistic identities of the community at large. This is important given that prior work has found cultural matching to predict student engagement, academic success, and social-emotional well-being (Rasheed et al., 2020). In 2024, a total of 46 reading specialists participated in a full two-day training facilitated by the core administrative team consisting of master's level special educators, clinical and school psychology doctoral students, and doctoral-level school, clinical, and developmental psychologists. Forty of the reading specialists were certified teachers, and six were qualified teachers (e.g., four-year teaching degree, or two years of relevant teaching experience). All reading specialists were supervised daily by regional supervisors, who were

responsible for intervention implementation across 5–10 sites, determined by site size and enrollment, within their designated region. Interventionists received at least two performance observations over the course of the summer using a structured observation rating form to assess adherence to session protocol and curriculum implementation. Specialists were provided with individualized and constructive feedback after observation to ensure consistent program intervention fidelity.

In addition to being given small-group intervention, caregivers of participating children were invited to attend a one-time family engagement event that was held at each of the SREP summer camp locations. The event took place during the middle of the program (e.g., July) and consisted of an interactive session in which SREP staff demonstrated how caregivers could use dialogic reading, an evidence-

based, shared method of reading to promote interest and engagement in reading (Lonigan et al., 1999; Wasik & Bond, 2001) with their children at home. If families missed the session, they were sent materials (handouts and a video demonstration) from the session via email.

## Measures

### **Measures of Child and Family Characteristics**

#### **Demographic Questionnaire.**

At the beginning of the program, caregivers received a family registration form that asked caregivers about demographic characteristics such as race/ethnicity, language history, grade, parental education (less than 12th grade, high school diploma/GED, some college, associate's degree, bachelor's degree, or graduate degree), student exceptionality (parent endorsement of a diagnosed condition or difficulty related to the child's emotional, behavioral, developmental, or mental health functioning) and family income (ranging from less than \$10,000 to over \$150,000 per year). Income level was coded as low, middle, or high based on information on federal poverty guidelines for a four-person household. Sample questions for the language history section included "How often does your child hear each language at home?", "How often does your child speak each language at home?", and "What language does your child speak most often?". Responses were available for both English and Spanish languages and included the options *low*, *adequate*, *good*, or *excellent*. These questions were created based on recommendations about the importance of collecting language history and proficiency questions (De Bruin, 2019). Student exceptionality was measured using the following question: "What conditions does your child have that are expected to last for a year or more?". Sample response options included *speech or language condition*, *problems with learning*, *autism*, *developmental delay*, and *problems with attention or hyperactivity*. Caregivers checked all responses that applied. These data were then coded as either endorsement of exceptionality or not.

**Peabody Picture Vocabulary Test.** The Peabody Picture Vocabulary Test, Fifth Edition (PPVT-5) is a quick (10–15 minute), standardized, individually administered assessment of receptive

Children completed one-minute probes measuring letter name, letter sound, and word reading fluency.

vocabulary for individuals aged 2 years, 6 months through adulthood. For SREP, the PPVT-5 was administered by trained program staff at the beginning of the program and prior to intervention to assess for children's baseline receptive English vocabulary skills. During administration, the examiner presents a page displaying four images and says a target word; the participant is asked to select the image that best represents the word. The PPVT-5 demonstrates strong internal consistency,  $\alpha = .94$  to  $.98$  (Canivez, 2021), and is widely used in both clinical and research settings as an indicator of receptive vocabulary and general verbal ability.

### **Measures of Program Promise**

**Oral Reading Fluency.** ORF is a curriculum-based assessment that uses curriculum-based measurement (CBM) probes (Fuchs et al., 2001). CBM has been shown to be a reliable indicator of reading achievement (Reschly et al., 2009). In this assessment, children completed one-minute probes measuring letter name, letter sound, and word reading fluency. Scores for each probe reflect the total number of correct responses within the one-minute timeframe. ORF scores are based on national benchmarks (Witt, 2006). ORF has shown strong concurrent validity, test-retest reliability, and internal consistency among school-aged children, with internal consistency reported at  $\alpha = .92$  (Fuchs et al., 2001; Spencer et al., 2013; Witt & VanDerHeyden, 2007). The probes were obtained from a commercially available source (Witt & VanDerHeyden, 2007) and were administered in English by trained research staff with at least a bachelor's degree.

### **Measures of Program Implementation**

**Attendance.** Weekly session attendance was measured via reports by reading specialists. Children had the opportunity to receive 24 small-group sessions throughout the course of the summer. Children who missed a session were able to do makeup sessions, when possible, but were limited to one makeup session per day. Attendance for the family engagement event was measured using sign-in sheets at the event.

**Program Satisfaction.** At the end of the program, caregivers completed a family satisfaction survey consisting of five quantitative items: "How

much did your child benefit from the program?”, “How likely are you to enroll your child in the program again?”, “How likely are you to recommend the Summer Reading Explorers program to other parents?”, “How much did your child enjoy tutoring?”, and “To what extent do you think the program increased your child’s enthusiasm for reading and learning?”. Response options included *not at all, just a little, some, much, very much*. These responses were used to evaluate the program’s acceptability, consistent with best-practice approaches in implementation research (Proctor et al., 2011).

## Results

### Analytic Approach

To address the first research question, which was to assess the average growth rate of children’s grade-level ORF skills in English, change scores were calculated to obtain the average growth rate of these skills. Change scores were calculated by subtracting scores at baseline from post-intervention. To address the second research question examining whether children showed significant growth in their ORF skills over the course of the summer intervention and to evaluate the promise of SREP, we ran multilevel negative binomial regression models with time (pre-intervention vs. post-intervention) included as the primary predictor of ORF performance. We also included several covariates that have been linked to reading skills and outcomes, including receptive vocabulary, parent education, family income, and student exceptionality, to account for individual differences that could be associated with children’s response to the summer reading program (Mann et al., 2021; Al Otaiba et al., 2023).

Overdispersion was assessed using the ratio of Pearson  $\chi^2$  to degrees of freedom ( $\chi^2/\text{df}$ ). Results indicated substantial overdispersion in the standard Poisson models for rising kindergarteners (RK;  $\chi^2/\text{df} = 3.55$ ), rising first-graders (R1;  $\chi^2/\text{df} = 3.55$ ), and rising second-graders (R2;  $\chi^2/\text{df} = 2.99$ ). In contrast, the negative binomial models demonstrated substantially improved fit across groups (RK  $\chi^2/\text{df} = 1.15$ ; R1  $\chi^2/\text{df} = 1.09$ ; R2  $\chi^2/\text{df} = 1.15$ ). These findings supported the use of negative binomial models for subsequent analyses.

### Program Promise

RK children demonstrated an average growth of 6.03 (SD = 7.32) letter names and 5.60 (SD =

6.46) letter sounds. R1 children made an average growth of 6.50 (SD = 11.33) letter names and 8.60 (SD = 10.74) letter sounds. Finally, R2 children demonstrated an average growth rate of 10.33 (SD = 14.56) words at post-assessment. When examining the percentage of children at each grade level and their improvement in ORF scores by 4 or more points, 82% of kindergarteners, 91% of first graders, and 69% of second graders made a 4-point or higher increase, indicative of more than two months’ growth in foundational literacy skills (STEEP Learning, 2007). In addition, Cohen’s  $d$  effect sizes were calculated for the outcome analyses (Cohen, 1988). For RK, pre- to post-scores revealed moderate effects for letter name ( $d = 0.49$ ) and letter sound knowledge ( $d = 0.76$ ). For R1, pre- to post-scores showed a small effect in letter name ( $d = 0.36$ ) and a moderate effect for letter sound knowledge ( $d = 0.56$ ). Last, for R2, pre- to post-scores demonstrated a moderate effect in words read ( $d = 0.51$ ). See Table 2 for more descriptive statistics.

To test our second research question, and based on the model fit analyses, we conducted five multilevel negative binomial regression analyses examining changes in ORF performance over time for (1) RK letter names, (2) RK letter sounds, (3) R1 letter names, (4) R1 letter sounds, and (5) R2 word reading. Time (pre-intervention vs. post-intervention) was included as the primary predictor in each model to examine changes in ORF performance across the summer intervention. The results are presented in Tables 3–5. For each model, we report the significance and directionality of the fixed effects. Predictors were entered into the models in their raw units to maintain practical interpretability. Given the log link function, exponentiated coefficients are interpreted as incident rate ratios (IRRs), representing the multiplicative change in ORF scores associated with a one-unit increase in the predictor.

For RK, results from Model 1 indicated a significant positive effect of time on letter name scores ( $p < .001$ ), suggesting that children demonstrated significant growth in letter name fluency from pre- to post-intervention. Session count ( $p < .001$ ), receptive vocabulary as measured by the PPVT ( $p < .001$ ), and family income ( $p = .03$ ) were positively associated with letter name performance over time. Parental education and student exceptionality were not significant predictors. Similarly, results from the RK letter sounds model demonstrated a significant

**Table 2. Descriptives for study sample (*N* = 539)**

| Oral reading fluency                                                                 | Pre-scores |       | Post-scores |       | Change in scores | Cohen's <i>d</i> |
|--------------------------------------------------------------------------------------|------------|-------|-------------|-------|------------------|------------------|
|                                                                                      | M          | SD    | M           | SD    |                  |                  |
| <b>LETTER NAMES</b>                                                                  |            |       |             |       |                  |                  |
| RK                                                                                   | 15.82      | 11.62 | 22.02       | 12.41 | 5.60             | 0.76             |
| R1                                                                                   | 38.84      | 18.62 | 45.36       | 17.51 | 6.50             | 0.36             |
| <b>LETTER SOUNDS</b>                                                                 |            |       |             |       |                  |                  |
| RK                                                                                   | 6.87       | 6.66  | 12.41       | 8.15  | 6.03             | 0.49             |
| R1                                                                                   | 25.10      | 13.84 | 33.64       | 16.72 | 8.60             | 0.56             |
| <b>WORDS</b>                                                                         |            |       |             |       |                  |                  |
| R2                                                                                   | 22.83      | 17.63 | 33.17       | 22.48 | 10.33            | 0.51             |
| <b>PARENT SATISFACTION</b>                                                           |            |       |             |       |                  |                  |
|                                                                                      | M          | SD    |             |       |                  |                  |
| How much did your child benefit?                                                     | 4.78       | 0.50  |             |       |                  |                  |
| How likely are you to have your child participate in the program again?              | 4.88       | 0.34  |             |       |                  |                  |
| How likely are you to recommend the program to other parents?                        | 4.88       | 0.30  |             |       |                  |                  |
| How much did your child enjoy tutoring?                                              | 4.80       | 0.45  |             |       |                  |                  |
| How much do you think the program was beneficial to increasing reading and learning? | 4.83       | 0.41  |             |       |                  |                  |

M = mean, SD = standard deviation

positive effect of time ( $p < .001$ ), indicating significant gains in letter sound fluency from pre- to post-intervention. Session count ( $p < .001$ ) and PPVT scores ( $p < .001$ ) were also positively associated with ORF performance. Parental education, income, and student exceptionality were not significant predictors in the model.

For rising first graders, results from Model 2 indicated a significant positive effect of time on letter name scores ( $p < .001$ ), suggesting that children demonstrated significant growth in letter name fluency from pre- to post-intervention. Receptive vocabulary, as measured by the PPVT, was positively associated with letter name performance over time ( $p < .001$ ).

**Parental education, income, and student exceptionality were not significant predictors in the model.**

Session count, parental education, income, and student exceptionality were not significant predictors in the model. Similarly, results from the letter sounds model demonstrated a significant positive effect of time on R1 letter sound scores ( $p < .001$ ), indicating significant gains in letter sound fluency across the intervention period. PPVT scores were also positively associated with ORF performance ( $p < .001$ ). Student exceptionality was negatively associated with letter sound performance ( $p < .001$ ), indicating lower ORF performance among students identified with an exceptionality. Session count, parental education, and income were not significant predictors.

**Table 3. Model 1: negative binomial Poisson regression: RK post-ORF**

| Predictors           | Est   | Exp Est | SE   | z     | p     |
|----------------------|-------|---------|------|-------|-------|
| <b>LETTER NAMES</b>  |       |         |      |       |       |
| Intercept            | 1.24  | 3.45    | 0.29 | 4.18  | <.001 |
| Pre-ORF              | 0.04  | 1.04    | 0.00 | 12.48 | <.001 |
| Session count        | 0.02  | 1.02    | 0.01 | 2.39  | 0.01  |
| PPVT                 | 0.01  | 1.01    | 0.00 | 2.59  | 0.00  |
| Parental education   | -0.01 | 0.99    | 0.02 | -0.29 | 0.77  |
| Income               | 0.04  | 1.04    | 0.09 | 0.39  | 0.69  |
| Exceptionality       | -0.00 | 0.99    | 0.09 | -0.04 | 0.96  |
| <b>LETTER SOUNDS</b> |       |         |      |       |       |
| Intercept            | -0.08 | 0.92    | 0.38 | -0.22 | 0.83  |
| Pre-ORF              | 0.06  | 1.06    | 0.01 | 8.61  | <.001 |
| Session count        | 0.05  | 1.05    | 0.12 | 4.75  | <.001 |
| PPVT                 | 0.01  | 1.01    | 0.00 | 3.10  | .001  |
| Parental education   | 0.01  | 1.01    | 0.03 | 0.37  | 0.70  |
| Income               | 0.16  | 1.17    | 0.11 | 1.35  | 0.18  |
| Exceptionality       | 0.09  | 1.09    | 0.11 | 0.79  | 0.44  |

Est indicates model coefficients (est = unstandardized regression estimates and exp est = exponentiated estimates). SE = standard error; z = z- statistic; RK = rising kindergarten.

Finally, results from Model 3 demonstrated a significant positive effect of time on R2 word reading scores ( $p < .001$ ), indicating significant gains in word reading performance from pre- to post-intervention. PPVT scores were positively associated with word reading performance over time ( $p = .02$ ), and family income was also positively associated with ORF performance ( $p < .001$ ). Session count, parental education, and student exceptionality were not significant predictors in the model.

### **Implementation Outcomes**

Child attendance for intervention sessions was high overall. On average, RK children attended 19.50 (SD = 4.54) intervention sessions, which corresponds to a dose of 81.25%. R1 children attended an average of 18.96 (SD = 4.59) sessions, which corresponds to an average dose of 79%. R2 children attended an average of 16.98 (SD = 5.31) sessions, which corresponds to an average dose of 70%.

Attendance for the family engagement events

**Table 4. Model 2: negative binomial Poisson regression: R1 post-ORF**

| Predictors           | Est   | Exp Est | SE   | z     | p     |
|----------------------|-------|---------|------|-------|-------|
| <b>LETTER NAMES</b>  |       |         |      |       |       |
| Intercept            | 2.95  | 19.20   | 1.48 | 19.85 | <.001 |
| Pre-ORF              | 1.81  | 1.01    | 1.06 | 17.08 | <.001 |
| Session count        | 4.91  | 1.00    | 4.37 | 1.12  | 0.60  |
| PPVT                 | 2.45  | 1.00    | 1.45 | 0.02  | 0.98  |
| Parental education   | 5.85  | 1.00    | 1.12 | 0.52  | 0.60  |
| Income               | -1.44 | 0.99    | 4.09 | -0.03 | 0.97  |
| Exceptionality       | -5.96 | 0.94    | 4.36 | -1.36 | 0.17  |
| <b>LETTER SOUNDS</b> |       |         |      |       |       |
| Intercept            | 2.11  | 8.28    | 0.20 | 10.38 | <.001 |
| Pre-ORF              | 0.03  | 1.00    | 0.00 | 15.32 | <.001 |
| Session count        | 0.02  | 1.01    | 0.00 | 2.74  | 0.00  |
| PPVT                 | 0.00  | 1.00    | 0.00 | 1.34  | 0.17  |
| Parental education   | 0.02  | 1.01    | 0.02 | 1.18  | 0.23  |
| Income               | -0.01 | 0.98    | 0.06 | -0.24 | 0.81  |
| Exceptionality       | -0.02 | 0.97    | 0.06 | -0.33 | 0.73  |

Est indicates model coefficients (est = unstandardized regression estimates and exp est = exponentiated estimates). SE = standard error; z = z-statistic; R1 = rising first-grade.

ranged across grades. Fifty-eight percent of rising kindergarteners, 55% of rising first-graders, and 58% of second grade families attended the event. Caregiver satisfaction of the SREP program was high. Means and standard deviations are presented in Table 2.

## Discussion

The current study examined the promise of a structured, community-based reading intervention on DLLs' early reading skills. We hypothesized that

children participating in the SREP would make an average ORF gain of 4 points over the course of the summer, and that children's reading scores would show significant growth from pre- to post-intervention. We also hypothesized that the program would be feasible to implement and show acceptability within the community.

Across all three grade levels (RK, R1, and R2), time was found to be a significant predictor of post-ORF scores, indicating that children's reading per-

**Table 5. Model 3: negative binomial Poisson regression: R2 post-ORF**

| Predictors         | Est   | Exp Est | SE   | z     | p     |
|--------------------|-------|---------|------|-------|-------|
| <b>WORDS</b>       |       |         |      |       |       |
| Intercept          | 0.52  | 1.68    | 0.54 | 0.95  | 0.33  |
| Pre-ORF            | 0.03  | 1.02    | 0.00 | 7.31  | <.001 |
| Session count      | 0.04  | 1.04    | 0.01 | 3.21  | 0.00  |
| PPVT               | 0.02  | 1.02    | 0.00 | 3.39  | 0.00  |
| Parental education | -0.04 | 0.95    | 0.04 | -0.99 | 0.31  |
| Income             | 0.02  | 1.02    | 0.23 | 0.11  | 0.90  |
| Exceptionality     | 0.13  | 1.14    | 0.14 | 0.93  | 0.35  |

Est indicates model coefficients (est = unstandardized regression estimates and exp est = exponentiated estimates). SE = standard error; z = z-statistic; R2 = rising second grade.

formance improved over the course of the summer; the average point growth was almost double the hypothesized number, indicating significant promise with small to moderate effect sizes of the intervention. On average, children were making gains representing more than two months' worth of growth in early literacy skills over the course of six weeks. This finding is promising given the accumulating effects of SLL and is consistent with other studies that have focused on the summer literacy development of DLLs (Beach & Traga Philippakos, 2020). Interestingly, intervention session count was a significant predictor in only one of the models (RK letter names and sounds). Intervention dosage appeared to be particularly important for RK students. Specifically, for RK children, attending a greater number of intervention sessions was associated with significantly higher post-intervention ORF scores, emphasizing the importance of consistent attendance and sufficient program duration in achieving meaningful literacy outcomes during summer learning opportunities for the youngest learners. Intervention count was not a

**On average, children were making gains representing more than two months' worth of growth in early literacy skills over the course of six weeks.**

significant predictor for R1 or R2 ORF scores, suggesting that factors beyond intervention dosage, such as individual differences in literacy development or prior reading proficiency, may play a larger role in shaping ORF performance among students after they enter elementary school. Further, we found small to moderate effect sizes for post-ORF scores, adding to the promise of the SREP. These findings align with previous research on literacy interventions for DLLs, which have reported moderate to large effect sizes but have focused primarily on more intensive, individualized instruction for students (Beach & Traga Philippakos, 2020), rather than the less intensive, small-group approach used in the current study. We are strongly encouraged that we found small to moderate effects on similar measures of early literacy with a less-intensive program (i.e., 12-18-hour vs. 42-hour intervention used in previous studies) in a sample consisting of 100% DLLs.

Overall, the program was feasible to implement, with most children attending at least 70% of the intervention sessions.

At the same time, we learned that implementing literacy interventions within the context of summer programming requires substantial flexibility, intentional staffing, and collaborative partnerships. Because the program occurred over six weeks during June and July, attendance variability due to vacations, illness, and early pickups was common; offering makeup sessions was necessary to get children the intended dose of intervention. These challenges should be anticipated in future implementation efforts and highlight the importance of building adaptable scheduling and attendance supports into summer intervention programming when transporting the model to other community settings. Our family engagement event attendance also was notably high for a one-time event, with over 50% participation across all grade levels, highlighting strong caregiver interest and involvement in the program despite the barriers to parent participation often reported among Latino families (Turney & Kao, 2010). Finally, parents reported high satisfaction with the program. Parents reported that their children benefited from the program, that they would recommend it to other families, and that they would like their children to participate again, all of which are promising indicators of the program's future uptake and acceptability.

Parents reported high satisfaction with the program.

### **Limitations and Future Direction**

Although the study demonstrates promise, several limitations should be noted. First, the current study used a pre-post, open trial design. This approach provided preliminary evidence of growth, but it did not allow for causal conclusions and restricted our ability to attribute observed gains specifically to the summer program. This decision was guided by the parameters of our existing community-based summer programming, which prioritized service delivery and limited the feasibility of including a nonparticipating comparison group. Without a comparison group of similar DLLs who did not participate, improvements in outcomes may reflect other factors such as maturation, seasonal learning patterns, or external experiences. Although the findings provide preliminary support for the promise of the program, future research using randomized controlled designs is needed to more rigorously evaluate its effectiveness.

Second, the evaluation focused on a limited set of early literacy skills, specifically oral reading fluency skills assessing letter names, letter sounds, and word reading. Future research should incorporate broader literacy domains, such as reading comprehension. Third, the program primarily supports English reading development. However, to champion DLL students and adhere to culturally responsive standards, SREP employs bilingual staff. This permits the seamless integration of Spanish and English within the English curriculum. Additionally, family engagement activities are all provided in families' preferred language, with English-Spanish bilingual books given during book giveaways.

Expanding instruction to incorporate more strategies to strengthen literacy development and connection in both languages is a critical next step. For example, incorporating cross-language connections emphasizing cognates (i.e., words in different languages that share a similar meaning, spelling, and pronunciation) and inclusion of more bilingual materials in instruction may be promising practices to better support growth for DLLs (Escamilla & Strong, 2024). Last, for this project, DLL status was

determined using language history and a proficiency question via parent report. With additional resources, future research could use more comprehensive tools that consider language history, cultural background, and the extent of exposure to each language across different settings. Future iterations of the SREP could assess literacy in children's home languages and include additional materials that are both culturally and linguistically inclusive.

### **Implications and Conclusions**

Early literacy is a critical aspect of children's development, with implications that extend well beyond the school years (Berkman et al., 2011; Duncan et al., 2007; Ritchie & Bates, 2013). Unfortunately, literacy gaps continue to widen over time, particularly for DLLs, and may be exacerbated during the summer months. Summer reading programs are uniquely positioned to support children's reading development and have been shown to help maintain gains made during the academic year (Dujardin et al., 2022; Kim & Quinn, 2013). Despite this promise, few studies have examined the effectiveness of such

programs for young Hispanic/Latinx DLLs. The present study addresses this gap by demonstrating the feasibility, acceptability, and potential impact of a community-based, structured reading intervention. These findings reinforce that when children are provided with structured, evidence-based literacy supports, they show measurable improvement. Further, we demonstrate that even relatively low-intensity summer literacy programs may effectively support early literacy development among DLLs, yielding small to moderate gains on measures comparable to those used in prior studies.

These findings have meaningful implications for practice, suggesting that scripted, accessible curricula can be effectively implemented not only by certified teachers, but also by other trained out-of-school time service providers, like youth workers and afterschool staff, especially if provided with coaching and supervision supports known to help maximize professional learning (NAA, 2023). Furthermore, leveraging other out-of-school time programming, such as afterschool programs, beyond traditional homework help, may represent an underutilized opportunity to deliver impactful literacy instruction, particularly for children who are already struggling with reading. Connecting community-based programs with broader initiatives, such as the Campaign for Grade-Level Reading (<https://gradelevelreading.net/>), may serve as a key lever for scaling and sustaining impact, including potential integration within school systems and other community organizations that fund summer and afterschool programs. Together, these findings highlight a scalable pathway for supporting the literacy development of DLLs that is greatly needed to better support and strengthen reading outcomes for this growing student population.

## Acknowledgments

The services reported here were supported by a grant awarded to Dr. Katie Hart by The Children's Trust of Miami-Dade County. The opinions expressed are those of the authors and do not represent the views of The Children's Trust. The authors acknowledge the support of our school and community partners, the Center for Children and Families at Florida

International University, and extend a special thank-you to our students, staff, and all the children and families who participated in the study.

**Expanding instruction to incorporate more strategies to strengthen literacy development and connection in both languages is a critical next step.**

## References

- Al Otaiba, S., McMaster, K., Wanzek, J., & Zaru, M. W. (2023). What we know and need to know about literacy interventions for elementary students with reading difficulties and disabilities, including dyslexia. *Reading Research Quarterly*, 58(2), 313–332. <https://doi.org/10.1002/rrq.458>.
- Atteberry, A., & McEachin, A. (2021). School's out: The role of summers in understanding achievement disparities. *American Educational Research Journal*, 58(2), 239–282. <https://doi.org/10.3102/0002831220937285>.
- Beach, K. D., & Traga Philippakos, Z. A. (2020). Effects of a summer reading intervention on the reading performance of elementary grade students from low-income families. *Reading & Writing Quarterly*, 37(2), 169–189. <https://doi.org/10.1080/10573569.2020.1760154>
- Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: An updated systematic review. *Annals of Internal Medicine*, 155(2), 97–107. <https://doi.org/10.7326/0003-4819-155-2-201107190-00000>.
- Canivez, G. L. (2021). Test review of the Peabody Picture Vocabulary Test–Fifth Edition. In J. F. Carlson, K. F. Geisinger, & J. L. Jonson (Eds.), *The twenty-first mental measurements yearbook* (pp. 523–526). Lincoln, NE: Buros Center for Testing. Available at <http://marketplace.unl.edu/buros/>.
- Cohen J. (1988). *Statistical power analysis for the behavioral sciences*. <https://utstat.toronto.edu/~brunner/oldclass/378f16/readings/CohenPower.pdf>.
- Cooper, H., Charlton, K., Valentine, J. C., & Muhlenbruck, L. (2000). Making the most of summer school: A meta-analytic and narrative review. *Monographs of the Society for Research in Child Development*, 65, i–127. <https://www.jstor.org/stable/3181549>.

- Crosnoe, R., & Turley, R. N. L. (2011). K-12 educational outcomes of immigrant youth. *The Future of Children*, 21(1), 129–152. <https://doi.org/10.1353/foc.2011.0008>.
- De Bruin, A. (2019). Not all bilinguals are the same: A call for more detailed assessments and descriptions of bilingual experiences. *Behavioral Sciences*, 9(3), 33. <https://doi.org/10.3390/bs9030033>.
- Dujardin, E., Ecalte, J., Gomes, C., & Magnan, A. (2022). Summer reading program: Asystematic literature review. *Social Education Research*, 4(1), 108–121. <https://doi.org/10.37256/ser.4120231923>.
- Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., Pagani, L. S., Feinstein, L., Engle, M., Brooks-Gunn, J., Sexton, H., Duckworth, K., & Japel, C. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428–1446. <https://doi.org/10.1037/0012-1649.43.6.1428>.
- Dunn, D. M. (2019). *Peabody picture vocabulary test (PPVT)* (5th ed.). Pearson. [https://www.pearsonassessments.com/en-us/Store/Professional-Assessments/Academic-Learning/Peabody-Picture-Vocabulary-Test-%7C-Fifth-Edition/p/100001984?srsltid=AfmBOopgN4Z4Qij9lsqKeXZp9BjG9A21\\_IJg1E808tzqub2OMMTfZZxC](https://www.pearsonassessments.com/en-us/Store/Professional-Assessments/Academic-Learning/Peabody-Picture-Vocabulary-Test-%7C-Fifth-Edition/p/100001984?srsltid=AfmBOopgN4Z4Qij9lsqKeXZp9BjG9A21_IJg1E808tzqub2OMMTfZZxC).
- Escamilla, K., & Strong, K. (2024). *Impact of the implementation of the science of reading instruction and policy on emergent bilingual/English learner literacy programs and teachers*. National Committee for Effective Literacy. <https://multilingualliteracy.org/wp-content/uploads/2025/02/Voices-from-the-Field-2024-FINAL.pdf>.
- Farver, J. A. M., Lonigan, C. J., & Eppe, S. (2009). Effective early literacy skill development for young Spanish-speaking English language learners: An experimental study of two methods. *Child Development*, 80(3), 703–719. <https://doi.org/10.1111/j.1467-8624.2009.01292.x>.
- Foorman, B., Beyler, N., Borradaile, K., Coyne, M., Denton, C. A., Dimino, J., Furgeson, J., Hayes, L., Henke, J., Justice, L., Keating, B., Lewis, W., Sattar, S., Streke, A., Wagner, R., & Wissel, S. (2016). Foundational skills to support reading for understanding in kindergarten through 3rd grade (NCEE 2016–4008). Washington, DC: National Center for Education Evaluation and Regional Assistance (NCEE), Institute of Education Sciences, U.S. Department of Education. <https://ies.ed.gov/ncee/WWC/PracticeGuide/21>.
- Fuchs, L. S., Fuchs, D., Hosp, M. K., & Jenkins, J. R. (2001). Oral reading fluency as an indicator of reading competence: A theoretical, empirical, and historical analysis. In *The role of fluency in reading competence, assessment, and instruction* (pp. 239–256). Routledge. <https://eric.ed.gov/?id=EJ640702>.
- Goldenberg, C. (2020). Reading wars, reading science, and English learners. *Reading Research Quarterly*, 55(S1), S131–S144. <https://doi.org/10.1002/rrq.340>.
- Harkness, S., & Super, C. M. (2020). Why understanding culture is essential for supporting children and families. *Applied Developmental Science*, 25(1), 14–25. <https://doi.org/10.1080/10888691.2020.1789354>.
- Heyns, B. (1978). *Summer learning and the effects of schooling*. New York, NY: Academic Press.
- Hoffman, J. V., Cabell, S. Q., Barrueco, S., Hollins, E. R., & Pearson, P. D. (2021). Critical issues in the science of reading: Striving for a wide-angle view in research. *Literacy Research: Theory, Method, and Practice*, 70(1), 87–105. <https://doi.org/10.1177/238133772110321>.
- Kim, J. S., & Quinn, D. M. (2013). The effects of summer reading on low-income children’s literacy achievement from kindergarten to grade 8: A meta-analysis of classroom and home interventions. *Review of Educational Research*, 83(3), 386–431. <https://doi.org/10.3102/0034654313483906>.
- Lonigan, C. J., Anthony, J. L., Bloomfield, B. G., Dyer, S. M., & Samwel, C. S. (1999). Effects of two shared-reading interventions on emergent literacy skills of at-risk preschoolers. *Journal of Early Intervention*, 22(4), 306–322. <https://doi.org/10.1177/105381519902200406>.
- Lonigan, C. J., Farver, J. M., Clancy-Menchetti, J., & Phillips, B. M. (2005, April). Promoting the development of preschool children’s emergent literacy skills: A randomized evaluation of a literacy-focused curriculum and two professional development models. *Reading and Writing*, 24(3), 305–337. <https://eric.ed.gov/?id=EJ915825>.
- Lonigan, C. J., Schatschneider, C., & Westberg, L. (with the National Early Literacy Panel). (2008). Impact of code-focused interventions on young

- children's early literacy skills. In *Developing early literacy: Report of the National Early Literacy Panel* (pp. 107–151). Washington, DC: National Institute for Literacy. <https://lincs.ed.gov/publications/pdf/NELPReport09.pdf>.
- Mann, M., Silver, E. J., & Stein, R. E. (2021). Kindergarten children's academic skills: Association with public library use, shared book reading and poverty. *Reading Psychology*, 42(6), 606–624. <https://doi.org/10.1080/02702711.2021.1888361>.
- Mathes, P. G., Denton, C. A., Fletcher, J. M., Anthony, J. L., Francis, D. J., & Schatschneider, C. (2005). The effects of theoretically different instruction and student characteristics on the skills of struggling readers. *Reading Research Quarterly*, 40(2), 148–182. <https://doi.org/10.1598/RRQ.40.2.2>.
- National Afterschool Association (NAA). (2023). Core knowledge, skills & competencies for out-of-school time professionals. [https://cdn.ymaws.com/naaweb.org/resource/collection/F3611BAF-0B62-42F9-9A26-C376BF35104F/NAA\\_Core\\_Knowledge\\_Skills\\_Competencies\\_for\\_OST\\_Professionals\\_rev2023.pdf](https://cdn.ymaws.com/naaweb.org/resource/collection/F3611BAF-0B62-42F9-9A26-C376BF35104F/NAA_Core_Knowledge_Skills_Competencies_for_OST_Professionals_rev2023.pdf).
- National Center for Education Statistics (NCES). (2024). Racial/ethnic enrollment in public schools. *Condition of Education*. U.S. Department of Education, Institute of Education Sciences. <https://nces.ed.gov/programs/coe/indicator/cge>.
- Paradis, J., Genesee, F., & Crago, M.B. (2021). *Dual language development & disorders: A handbook on bilingualism and second language learning* (3rd ed.). Paul H. Brookes Publishing Co. <https://products.brookespublishing.com/Dual-Language-Development-Disorders-P1242.aspx>.
- Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., Griffey, R., & Hensley, M. (2011). Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Administration and Policy in Mental Health and Mental Health Services Research*, 38, 65–76. <https://doi.org/10.1007/s10488-010-0319-7>.
- Rasheed, D. S., Brown, J. L., Doyle, S. L., & Jennings, P. A. (2020). The effect of teacher–child race/ethnicity matching and classroom diversity on children's socioemotional and academic skills. *Child Development*, 91(3), e597–e618. <https://doi.org/10.1111/cdev.13275>.
- Reschly, A. L., Busch, T. W., Betts, J., Deno, S. L., & Long, J. D. (2009). Curriculum-based measurement oral reading as an indicator of reading achievement: A meta-analysis of the correlational evidence. *Journal of School Psychology*, 47(6), 427–469. <https://doi.org/10.1016/j.jsp.2009.07.001>.
- Ritchie, S. J., & Bates, T. C. (2013). Enduring links from childhood mathematics and reading achievement to adult socioeconomic status. *Psychological Science*, 24(7), 1301–1308. <https://doi.org/10.1177/0956797612466268>.
- Schmitt, A. M., Horner, S. L., & Lavery, M. R. (2019). The impact of summer programs on the English language scores of migrant children. *Literacy Research and Instruction*, 59(1), 78–93. <https://doi.org/10.1080/19388071.2019.1687794>.
- Spencer, E. J., Spencer, T. D., Goldstein, H., & Schneider, N. (2013). *Identifying early literacy learning needs: Implications for child outcome standards and assessment systems* (pp. 45–52). Baltimore, MD: Brookes Publishing.
- STEEP Learning. (2007). *Technical manual: STEEP oral reading fluency progress monitoring assessments*. iSTEEP Learning.
- Turney, K., & Kao, G. (2010). Barriers to school involvement: Are immigrant parents disadvantaged? *Journal of Educational Research*, 102(4), 257–271. <https://doi.org/10.3200/JOER.102.4.257-271>.
- U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (U.S. Department of Education, NCES). (2024) Reading Assessments. [https://www.nationsreportcard.gov/reports/reading/2024/g4\\_8/performance-by-student-group/?grade=4](https://www.nationsreportcard.gov/reports/reading/2024/g4_8/performance-by-student-group/?grade=4).
- U.S. Department of Education, National Center for Education Statistics (U.S. Department of Education, NCES). (2018). Table 204.27. English learner (EL) students enrolled in public elementary and secondary schools by home language, grade, and selected student characteristics: Selected years, 2009–10 through fall 2016. [https://nces.ed.gov/programs/digest/d18/tables/dt18\\_204.27.asp](https://nces.ed.gov/programs/digest/d18/tables/dt18_204.27.asp).
- Vadasy, P. F., & Sanders, E. A. (2010). Efficacy of supplemental phonics-based instruction for low-skilled kindergarteners in the context of language minority status and classroom phonics instruction. *Journal of Educational Psychology*, 102(4), 786–803. <https://doi.org/10.1037/a0019639>.
- Wasik, B. A., & Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and

language development in preschool classrooms.  
*Journal of Educational Psychology*, 93(2), 243–250.  
<https://doi.org/10.1037/0022-0663.93.2.243>.

Witt, J.C. (2006). STEEP reading intervention manual: Screening, intervention, progress monitoring.

Witt, J. C., & VanDerHeyden, A. M. (2007). The system to enhance educational performance (STEEP): Using science to improve achievement. *Handbook of response to intervention* (pp. 343–353). Boston, MA: Springer. [https://doi.org/10.1007/978-0-387-49053-3\\_26](https://doi.org/10.1007/978-0-387-49053-3_26).



# Translating Research into Practice

## Co-Designing Research-Based Tools with Mentors and Program Leaders

**Ta-yang Hsieh, Justin Roskopf, & Mike Foote**

Translating research into practice for youth development out-of-school time (OST) programs is a dynamic, responsive, and skilled craft. The value of researchers and practitioners building off each other's wisdom in the service of youth is obvious; what is less often discussed is the fluid, collaborative, and often messy process of doing so.

This article showcases a co-design process of working with mentors and mentoring program leaders to translate youth development research into actionable tools. We first contextualize our work by describing the program context (the "Who") and our co-design process (the "How"). Then, for each of three tools that came out of this co-design process (the "What"), we describe the research that guided its development and its transferable uses for youth development OST programs at large.

### Who: The DREAM Program

The mission of DREAM (Directing through Recreation, Education, Adventure, and Mentoring; <https://www.dreamprogram.org/>) is to close the opportunity gap for children and teens through deep community collaboration and sustained mentoring relationships. Founded in Vermont's Upper Valley, DREAM now operates more than 45 sites in the Northeast and mid-Atlantic regions. Across its footprint, DREAM serves approximately 800 youth (ages 6–16), predominantly from low-income backgrounds. The core of DREAM's programming is "Village Mentoring," which uses a flexible and dynamic group mentoring model in which youth are matched 1:1 with a college student mentor and have opportunities to meet as part of a mentoring community with other mentor–mentee dyads. Time

**TA-YANG HSIEH** is a research scientist and **JUSTIN ROSKOPF** is the senior continuous improvement manager with the Search Institute in Minneapolis. **MIKE FOOTE** is the chief empowerment officer of the DREAM Program in Winooski, Vermont.

is spent checking in one-on-one, as well as with team-oriented larger group activities. DREAM also offers afterschool enrichment and summer camps.

Through an AmeriCorps research and evaluation grant, DREAM partners with Search Institute, an applied research nonprofit organization, to improve program quality.

## How: Co-Design with Mentors and Mentoring Program Leaders

We took a ground-up, improvement science-inspired approach to this program improvement effort.

### **Step 1: Focus groups and a survey to identify improvement areas and problems of practice.**

With the goal of improving DREAM's program quality, we started with a series of focus groups with selective mentors ( $N=14$ , who represent the various regions that DREAM serves) to identify key improvement areas (see Figure 1). The focus group questions were intentionally broad, such as "What barriers get in the way of you doing your best work as a mentor?" and "If you could make one improvement to DREAM, what would it be?" Three main improvement areas were identified from the focus groups: (1) lack of clarity around the Village Mentoring model; (2) a need for developmentally targeted programming; and (3) inconsistency in the one-to-one mentoring quality.

Once these improvement areas were identified,

The problem of practice is not so much "What do we do?" but a lack of shared language to know "Are we doing this correctly?"

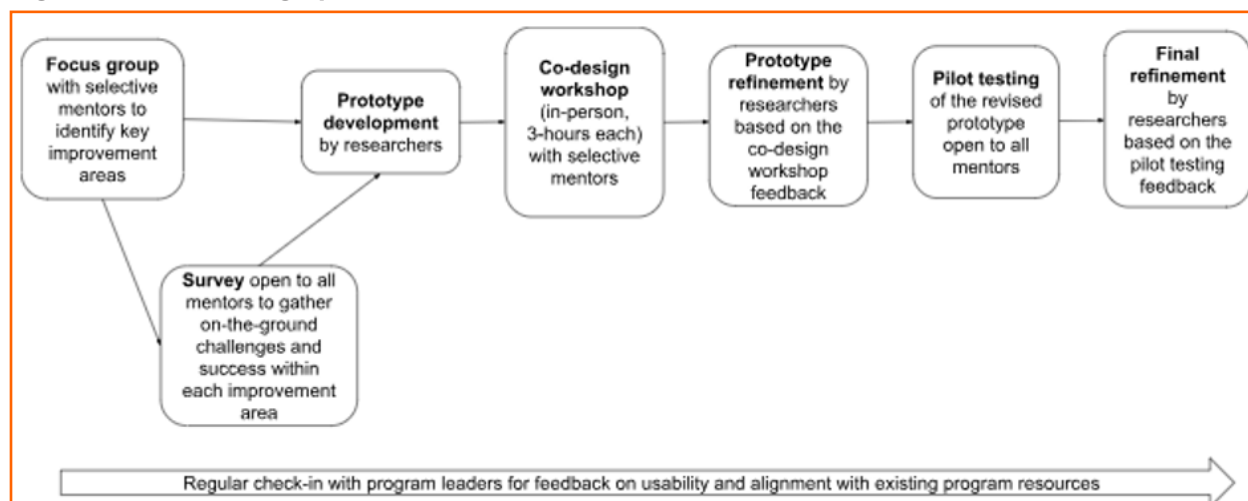
we invited *all* mentors to a survey. Responses to the survey ( $N=51$ ) helped us further pinpoint specific *problems of practice* and potential solutions within each improvement area. For example, regarding the first improvement area, we learned through survey responses that because of DREAM's decentralized program model, each site approaches Village Mentoring in silos without clear top-down guidance or exchanges of best practices or lessons learned across sites. In other words, the problem of practice is not so much "What do we do?" but a lack of shared language to know "Are we doing this correctly?" As such, mentors were eager

for some structure (or rubric) for the Village Mentoring model so that they could plan intentionally, know where to improve, and share insights across sites. Overall, the survey helped narrow down three concrete problems of practice (see Table 1). In the survey, we also intentionally asked about

"what works," which helped ground our design and eventual tools in mentor voices from a strength-based perspective.

**Step 2: Co-design workshops to gather feedback on the tool prototypes.** Taking the results from the mentor focus groups and the survey, the researchers developed three tool prototypes, addressing each of the problems of practice. The development of each prototype started with summarizing a body of relevant research, highlighting promising strategies that emerged from the mentor focus groups and survey,

Figure 1. The co-design process



and then creating an activity for mentors based on the referenced research. Once developed, the prototypes were taken to a series of three co-design workshops, where mentors tried out the prototypes and gave extensive feedback. The smallest co-design workshop was attended by 4 mentors; the largest was attended by more than 10 mentors. The co-design workshops were highly hands-on and interactive, each three hours long with structured individual reflections, small group discussions, as well as large group share-outs to encourage a variety of feedback. Example discussion questions in the co-design workshops included “What about this tool would NOT work well for DREAM?” and “What structures/resources would be helpful in making sure mentors actually use this tool?” The co-design workshops yielded abundant feedback, which the researchers used to revise each of the prototypes.

### ***Step 3: Pilot testing of the refined prototypes.***

The revised prototypes then went through pilot testing, in which all mentors were invited to partake. Pilot testers were encouraged to try out the refined prototypes with their mentees and fellow mentors *during programming*, which gave us contextually valid feedback regarding actual implementation. Once the pilot testers ( $N = 20$ ) tried out the refined prototypes, they were asked to complete a survey, which consisted largely of questions about implementation (e.g., “What adaptations did you make when you used this tool?”). The pilot testing feedback was used to make final refinements to the tools.

***Throughout: Program leader buy-in and support.*** As shown in Figure 1, we had regular check-ins with the DREAM program leaders throughout this co-design process. During those check-ins, the program leaders provided high-level insights on the tools’ usability. Importantly, they also helped identify alignment with existing program resources, which ensured that we were not adding “yet another thing” to the mentors’ plates. The program leaders also played a critical role in recruiting mentors at various points for feedback.

## **What: Three Actionable Tools Grounded in Research for Mentoring and Youth Development Programs**

Our co-design process led to the development of three research-based, actionable tools. Each tool is anchored in a body of youth development research and addresses a problem of practice identified from the mentor

focus groups and survey: lack of clarity around the mentoring model, a need for developmentally targeted programming, and inconsistency in the quality of the 1:1 mentoring (see Table 1). All tools are freely available online.

### ***Tool 1: A program planning and debriefing template guided by research on high-quality youth development programs***

The first improvement area calls for structure to DREAM’s Village Mentoring model so that mentors can plan intentionally, know where to improve, and share insights across sites. To address this need, we set out to create a program planning and debriefing template that lays out a high-level structure for programming without being prescriptive. In essence, our goal was to create a template that provides structure to help hold programming across DREAM’s various sites to the same, research-based standards, yet at the same time allows each site to apply such standards based on its unique program context.

Our template is grounded in research on high-quality youth development programs (e.g., National Academies of Sciences, Engineering, and Medicine, 2025). The template starts by introducing key pillars of high-quality youth development programs: physical and psychological safety; appropriate structure; supportive relationships; opportunities for skill-building; youth voice and choice; contribution, efficacy, and mattering; opportunities to belong; integration of community efforts; and culturally sustaining practices. To help mentors remember these pillars as shared vocabularies, each pillar is accompanied by an icon (e.g.,  for youth voice and choice) when they are referenced in the template. Then, the template goes over some promising practices (“tips”) for group mentoring that emerged from the mentor focus groups and survey. The rationale for including them is to show that both research and practical wisdom are valuable insights.

Next is the program planning section (see Figure 2). The left side of this section is a simple table for planning who does what at what time; the right side references relevant pillars of high-quality youth development programs in checklist style with concrete, practical examples. For example, during arrival, the template prompts mentors to think about the pillar of “physical and psychological safety” by asking specific questions such as “Are there multiple ways for youth

**Table 1. Development of co-designed tools**

| Program Improvement Area                           | Problems of Practice                                                                                | Research that Anchored Development                                                                                                             | Co-Designed Tool                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lack of clarity around the Village Mentoring model | A need for shared languages to provide structure and consistency for Village Mentoring across sites | The Future of Youth Development: Building Systems and Strengthening Programs (National Academies of Sciences, Engineering, and Medicine, 2025) | Program planning and debriefing template: DREAM Village Mentoring Planner, <a href="https://drive.google.com/file/d/10cc7Hz_wD3Ft8xIMMlwbLRGmL1flkfHm/view?usp=sharing">https://drive.google.com/file/d/10cc7Hz_wD3Ft8xIMMlwbLRGmL1flkfHm/view?usp=sharing</a> .                                                                              |
| Need for developmentally targeted programming      | Need for programming tailored for older youth (ages >13)                                            | The Core Science of Adolescent Development (UCLA Center for the Developing Adolescent, 2026)                                                   | Identity flower: an activity that guides mentors in discussing the various facets of identities with their mentees: DREAM Guide for Engaging Older Youth, <a href="https://drive.google.com/file/d/1EdKM1s7fZeHwlar-eo5VXWA-StuGZg4Q/view?usp=sharing">https://drive.google.com/file/d/1EdKM1s7fZeHwlar-eo5VXWA-StuGZg4Q/view?usp=sharing</a> |
| Inconsistency in the quality of 1:1 mentoring      | Need for easy-to-pick-up tools that foster mentoring relationships                                  | The Developmental Relationships Framework (Search Institute, 2026)                                                                             | DREAM Developmental Relationships conversation card deck, <a href="https://drive.google.com/file/d/13xUuk9VPpWNI1EpoEXpzoSWVupHNQbmz/view?usp=sharing">https://drive.google.com/file/d/13xUuk9VPpWNI1EpoEXpzoSWVupHNQbmz/view?usp=sharing</a>                                                                                                 |

**Figure 2. Section of the program planning template**

| <b>Group mentoring</b><br><i>Opportunities/goals for skill-building: what do we want youth to walk away with today?</i><br><i>Quality over quantity: matching activities with your goals is more impactful than trying to accomplish too many.</i><br><div style="display: flex; justify-content: space-between;"> <div>                     (consider small group design)<br/> <input type="checkbox"/> practical life skills<br/> <input type="checkbox"/> academic/study skills<br/> <input type="checkbox"/> critical thinking skills<br/> <input type="checkbox"/> artistic/creative expression<br/> <input type="checkbox"/> identity development                 </div> <div>                     (consider larger group design)<br/> <input type="checkbox"/> social/interpersonal skills<br/> <input type="checkbox"/> communication skills<br/> <input type="checkbox"/> cultural competency<br/> <input type="checkbox"/> peer bonding<br/> <input type="checkbox"/> collaboration/teamwork                 </div> </div> |                                                         |                   | <b>Are the activities:</b><br><input type="checkbox"/> chosen by youth, rather than by the mentors 🧑🏽<br><input type="checkbox"/> allowing youth to engage in various ways (e.g., choose your adventure options) 🧑🏽<br><input type="checkbox"/> challenging youth beyond their comfort zone, but not so much that it becomes frustrating 🧑🏽<br><input type="checkbox"/> uplifting youths' identities and backgrounds ❤️<br><input type="checkbox"/> helping foster relationships between youths (e.g., healthy competitions) 🧑🏽<br><input type="checkbox"/> suitable for different ages (if not, consider separating into small groups) 🧑🏽 |                 |                                                         |                   |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------|-------------------|--|--|--|--|--|--|--|--|--|
| <table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 20%;">Who?<br/>(Diane)</th> <th style="width: 40%;">Does what?<br/>(group game of the day: capture the flag)</th> <th style="width: 40%;">When?<br/>(25 min)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Who?<br>(Diane) | Does what?<br>(group game of the day: capture the flag) | When?<br>(25 min) |  |  |  |  |  |  |  |  |  |
| Who?<br>(Diane)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Does what?<br>(group game of the day: capture the flag) | When?<br>(25 min) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                                                         |                   |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                                                         |                   |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                                                         |                   |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                                                         |                   |  |  |  |  |  |  |  |  |  |
| ⚙️ Transition: _____(time)_____ (method)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                                                         |                   |  |  |  |  |  |  |  |  |  |
| ⚙️ Transition: _____(time)_____ (method)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                         |                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                                                         |                   |  |  |  |  |  |  |  |  |  |

to feel at ease (e.g., conversations, music, low-sensory areas)?” and “Do check-ins go beyond surface level to address youth’s emotional needs?” As another example, for closing, the template prompts mentors to reflect, “Are youth motivated to come back (e.g., a genuine ‘see you next time’) for each and every youth?” (for the pillar of opportunities to belong) and “How would youth share their feedback?” (for the pillar of youth voice and choice). By the time that mentors fill out the planning template, they essentially have an agenda for their programming that clearly spells out who is doing what, when, and with what intentions.

Following the program planning section, a debriefing section (see Figure 3) starts by asking

mentors to quickly self-rate how they did on each pillar of high-quality youth development programs (a green light for “We did really well!”, a yellow light for “We did well, but some room for improvement, or a red light for “Did not go so well”). Each pillar is also accompanied with a debriefing question (e.g., “Were youth given exciting opportunities to give back or step up?” for the pillar of contribution, efficacy, and mattering). The debriefing template also encourages mentors to add topics that are salient for their specific site’s context. A strong reaction that came out of the co-design workshops was to make this debriefing section more actionable and concrete. As a result, we added a list of “what to KEEP/START doing” (impactful strategies) and “what to STOP doing”

**Figure 3. Section of the program debriefing template**

|                                                                                                                                                                                               |                                                                                                                                                                                                                                                             | Debrief questions                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
|  Physical & psychological safety                                                                             |          | What adjustments or accommodations did we make? Any interaction that we are concerned about (e.g., confrontational, awkward)? |
|  Appropriate structure                                                                                     |    | What about behavioral management worked well today? What did not work so well?                                                |
|  Supportive relationships                                                                                  |    | How were we intentional about building inclusive mentor-youth and youth-youth relationships today?                            |
|  Opportunities for skill-building                                                                          |    | In what ways did we leverage youths' existing skills and knowledge? How did we build upon that?                               |
|  Youth voice & choice                                                                                      |    | In what ways did we seek youth feedback today?                                                                                |
|  Contribution, efficacy, mattering                                                                         |    | In what ways were youth given exciting opportunities to give back or step up?                                                 |
|  Opportunities to belong                                                                                   |    | How was the overall vibe? Think about <i>each and every</i> youth, did anyone get left out?                                   |
|  Integration of community efforts                                                                          |    | How might the things we did today relate to youth's lives at home, in school, and in the community?                           |
|  Culturally sustaining practices                                                                           |    | In what ways did we celebrate youths' identities and cultures today?                                                          |
| Add your own debriefing questions ( <i>think about your site's unique needs &amp; strengths</i> ):<br>(common examples: roles & responsibilities, significant observation for specific youth) |                                                                                                                                                                                                                                                             |                                                                                                                               |
|                                                                                                                                                                                               |    |                                                                                                                               |
|                                                                                                                                                                                               |    |                                                                                                                               |
|                                                                                                                                                                                               |    |                                                                                                                               |

(anti-examples) for each pillar of high-quality youth development programs.

Feedback from the co-design workshop and pilot testing suggested that mentors appreciated both the research-based structure and the room for adaptation that the template provides. As one mentor shared:

I really like that the planner provides a good structure but it's not too intense to have to follow. This makes it easy for the mentors to organize their team time and still be able to adapt to the group of mentees. I also like how it incorporates the nine key areas that strong programs should have and helps to see what exactly should be met during team time.

## Tool 2: An “identity flower” activity guided by the science of adolescence

The second improvement area was developmentally targeted programming. It became clear through survey responses that DREAM’s programming was largely geared toward younger youth (age 13 or below), often leaving older youth disengaged or dropping out. To address this need, we turned to the science on adolescence (UCLA, 2026). Our goal was to develop an activity that helps mentors engage with older youth based on what we know thriving looks like during this developmental period. Again, what we know from research is presented alongside what we know from the field, as both are valuable forms of insights (see Figure 4).

Figure 4. Introduction to the “identity flower” activity for engaging older youth

### What we know from research

[The science on adolescence](#) clearly shows this developmental period as a stage of opportunity, exploration, and tremendous growth. Adolescents, including those in DREAM, thrive when they:

|                                                                                                                                                                                        |                                                                                                                                                                                                |                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Have safe and exciting ways to <b>explore, take risks</b>, and try out new things and ideas.</p> |  <p>Navigate through situations that build their <b>emotional regulation and decision-making skills</b>.</p> |  <p>Develop a <b>sense of purpose</b> through meaningful contributions.</p>            |
|  <p><b>Earn respect and social status</b> among not just adults, but also their peers.</p>          |  <p>Develop <b>personal values and goals that align with their identities</b>.</p>                          |  <p>Have a <b>supportive, trusting web of relationships</b> (this includes you!).</p> |

### Top 5 tips from DREAM mentors/YSMs

- **Have deep, 1:1** (or small group) **conversations** about their interests and future aspirations.
- Once they express interest in something, **introduce them to people, places, and resources** (e.g., connect them with someone from your university who majors in the subject that your mentee is interested in, take them to job fairs).
- **Set aside teen-specific time** on topics such as entrepreneurship, cultural significant events (e.g., Black History Month), teen board game nights, practical life skills, leadership opportunities, and coping with difficult situations.
- Build their sense of agency by **asking what they want**: this can be as small as letting them decide what food to get, to as big as letting them plan an outing.
- **Community service, goal-oriented projects** could be a good way to cultivate purpose, foster responsibility, and build confidence. Consider projects that you can revisit over time.

Our activity for engaging older youth—the identity flower—specifically draws on the research behind adolescence as an incredibly formative time for identity exploration and development. In essence, the activity encourages mentors and mentees to artistically express and discuss the various facets of their identities. To start with, the activity prompts mentors and mentees to think about what they really wish the other person knew about who they are (e.g., “Think about your hobbies and interests; think about the words that people close to you might use to describe you”). Mentors and mentees are then asked to draw a flower with various petals (or other images that are made up of multiple parts, such as a solar system with different planets or a tree with different branches), with each petal representing a facet of their identity. Finally, mentors and mentees are encouraged to have a conversation in which they take turns sharing what they drew and how their various identities shape the way they show up in DREAM (see Figure 5).

Feedback from the co-design workshop and pilot testing shows that mentors appreciate having a concrete tool to engage older youth in opening up about themselves. Mentors also appreciate the detailed, step-by-step instructions that our tool provides, which makes talking about identity—no doubt, a big topic—feel more manageable. As one mentor shared:

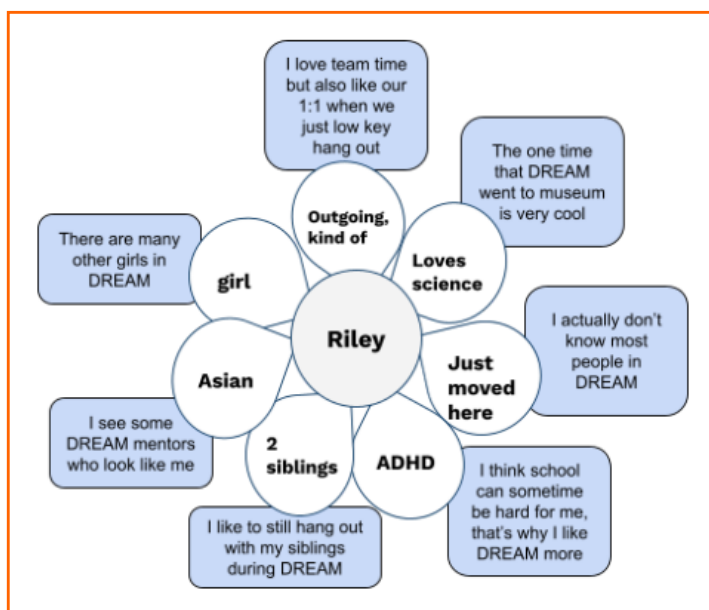
I love that this can get kids talking about their identities in a fairly straightforward way. I think at this age, they can get very uncomfortable talking about themselves and tend to feel very alone. This is a great way to find what we have in common with them, and also recognize that it’s our differences that make us who we are.

### Tool 3: A conversation card deck guided by the Developmental Relationships Framework

The final tool aimed to address the inconsistency in DREAM’s one-to-one mentoring relationship quality. DREAM grounds relationship building between mentors and mentees using the five elements of the Developmental Relationships Framework (Search Institute, 2026): Express Care, Provide Support, Challenge Growth, Share Power, and Expand Possibilities. Because of the decentralized program model, though, different sites implement the framework to different extents, leading to inconsistency in relationship quality across sites. Our task was to (re-)introduce the Developmental Relationships Framework and make it more actionable.

We co-designed a tool that is easy to pick up and can be seamlessly embedded into mentors’ and mentees’ one-to-one time: a conversation card deck. Each conversation card is color coded and labeled by the Developmental Relationships element that it is designed to foster. Based on feedback from the co-design workshop and pilot testing, each card is also labeled with approximately how long the conversation

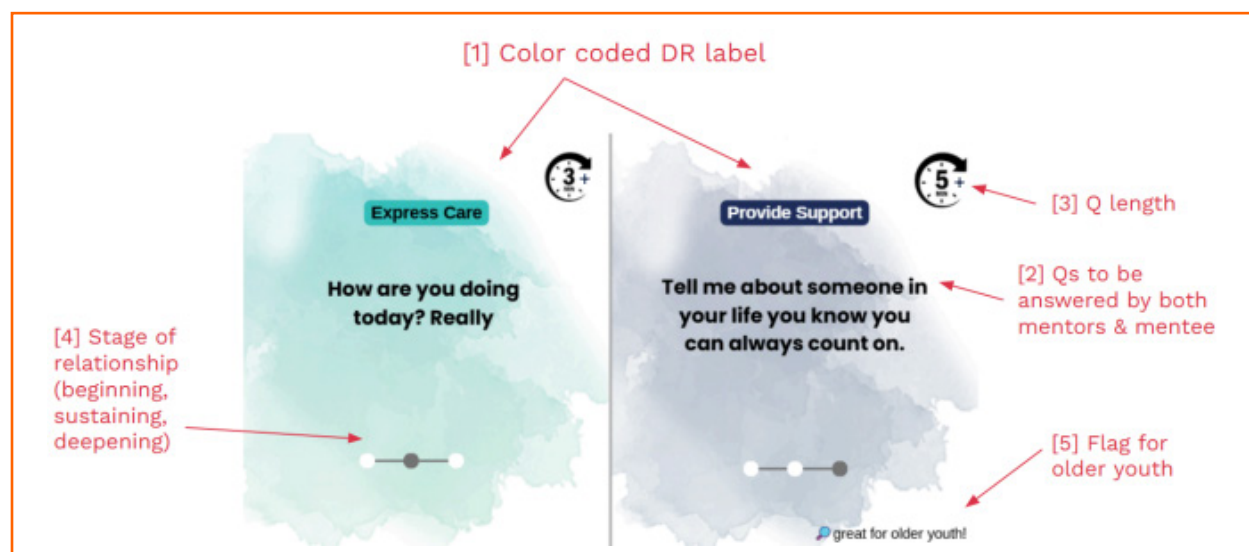
Figure 5. Example from the identity flower activity



will take, what stage of the mentoring relationship the conversation is best suited for, and a label for deeper conversation questions that are fitting for older youth (see Figure 6). Those labels can help mentors quickly pick out cards that would be most appropriate and helpful for them and their mentees.

A key feedback element that emerged from the co-design workshop was the notion that following up through a conversation can be as important as opening one up. Especially because some of the cards might open up vulnerable conversations (e.g., for Share Power: “Are there times when you feel left

**Figure 6. Instructions for the Developmental**



out? What happened?"; for Express Care: "What is something or someone you loved, but lost?"), mentors were eager for more support and guidance after using the conversation cards. As a result, we added a list of example extensions, or suggested follow-up practices, for each of the Developmental Relationship elements. For Share Power, as an example, we suggested that mentors encourage their mentees to ask them questions, and be open to being wrong by learning about common mentoring pitfalls (National Mentoring Resource Center, 2006).

Feedback from the co-design workshop and pilot testing shows that mentors appreciate having this "back-pocket tool" that helps make a research framework come alive. Overall, mentors value the cards as a helpful tool for facilitating conversations and fostering relationships, even extending beyond mentor-mentee relationships, as a program staff member shared:

The more I sit with these and think about their applications to our work, the more ways that I envision utilizing them to further and deepen relationships across our program—staff with mentors, mentors with one another, and of course mentors and mentees.

### Implication for OST Programs

We wrote this article with the intention to share not only the co-designed tools with other youth development OST programs, but also our *process* of translating research into practice. Our process is by no means the only or the perfect way of doing so. For example, we acknowledge that the researchers took the lead on developing the prototypes (which has both pros and cons), and that our pilot testing process was a truncated version of the typical PDSA (Plan-Do-Study-Act)

continuous improvement process. Nonetheless, we hope our work sheds light on how researchers and practitioners can work together to turn insights into actions, with the ultimate goal of better serving youth with research-based practical tools.

### Acknowledgments

First, we thank the mentors and mentoring program leaders who provided their insights. We also thank Dr. Erica Van Steenis for building the groundwork for this co-design process. Finally, we thank Drs. Ashley Boat and Amy Syvertsen, who played important roles in cultivating the partnership between DREAM and Search Institute.

### References

- National Academies of Sciences, Engineering, and Medicine. (2025). *The Future of Youth Development: Building Systems and Strengthening Programs*, D. Moroney and P. Nalamada, eds. Washington, DC: The National Academies Press. <https://www.nationalacademies.org/read/27833>.
- Search Institute. (2026). Developmental relationships. <https://searchinstitute.org/developmental-relationships>.
- UCLA Center for the Developing Adolescent. (2026). The core science of adolescent development. <https://developingadolescent.semel.ucla.edu/core-science-of-adolescence>.
- U.S. Department of Education Mentoring Resource Center. (2006). Mentoring fact sheet: overcoming relationship pitfalls. <https://nationalmentoringresourcecenter.org/resource/mentoring-fact-sheet-overcoming-relationship-pitfalls/>.

# Afterschool Matters

## Call for Papers

*Afterschool Matters* is a peer-reviewed journal dedicated to promoting professionalism, scholarship, and consciousness in afterschool education. Published by the National Institute on Out-of-School Time, *Afterschool Matters* serves practitioners who work with youth in out-of-school time (OST) programs, as well as researchers and policymakers in youth development.

We are seeking articles for future issues of the journal, beginning with Fall 2027. Scholarly or practice-based work on all aspects of OST programming for children and youth, from a variety of disciplines and academic perspectives, will be considered. We welcome submissions that explore practical ideas for working with young people in OST programs. Personal or inspirational narratives and essays are appropriate for our section “Voices from the Field.”

All articles, whether scholarly or practice-based, should connect theory to practice and should be broadly applicable across the field. Articles must be relevant and accessible to both practitioners and academic researchers.

We invite you to discuss possible topics in advance with us. A broad variety of topics will be considered, including the following:

- Innovative program approaches in creative youth development, STEM, civic engagement, social and emotional development, or academic improvement
- Research or best-practice syntheses
- Key aspects of program leadership and administration
- OST system-building, such as cross-city and statewide initiatives
- Expanded or extended learning time and the OST hours
- School-community partnerships that support OST programming
- Physical activity and healthy eating
- Special needs youth, immigrant and refugee youth, or other vulnerable populations in OST
- Youth-centered participatory action research projects
- Gender-focused research and policy initiatives related to OST

### Submission Guidelines

- For consideration for the Fall 2027 issue, submit your article no later than March 2, 2027, to [ASMsubmission@wellesley.edu](mailto:ASMsubmission@wellesley.edu).
- Submissions should not exceed 5,000 words.
- Submit your article electronically in Microsoft Word or rich text format. Use 12-point Times New Roman font, double-spaced, with one-inch margins on all sides. Leave the right-hand margin ragged (unjustified), and number pages starting with the first page of text (not the title page, which should be a separate document).
- Include a separate cover sheet with the manuscript title, authors' names and affiliations, and the lead author's phone number and e-mail address.
- The names of the authors should not appear in the text, as submissions are reviewed anonymously by peers.
- Follow the *Publication Manual of the American Psychological Association, 7th Edition* (2019), for reference style guidelines. Present important information in the text and do not use extensive footnotes.

We welcome inquiries about possible article topics. To discuss your ideas, please contact:

Georgia Hall, PhD

Director and Senior Research Scientist, Managing Editor

National Institute on Out-of-School Time

E-mail: [ghall@wellesley.edu](mailto:ghall@wellesley.edu) / Phone: 781-283-2530

Submit manuscripts electronically to [ASMsubmission@wellesley.edu](mailto:ASMsubmission@wellesley.edu)