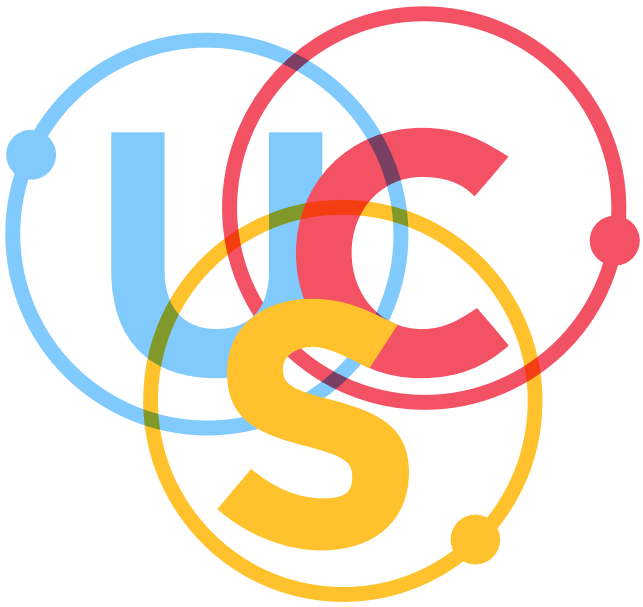
Volume 11, Number 1 | Summer 2023

UNIVERSITIES COMMUNITY SCHOOLS

Universities and Community Schools



A Publication of the

Netter Center for Community Partnerships
University of Pennsylvania

UNIVERSITIES
COMMUNITIES
SCHOOLS

Statement of Purpose

Universities and Community Schools will not duplicate the work of any existing publication or association. Since its founding in 1989, the journal's unique purpose has been to help build an informal international network of academics and practitioners working, in different places and ways, to increase the contributions universities make to the development and effectiveness of community schools. In our judgment, developing and sustaining a systematic sustained network is necessary if schools, communities, and universities are to function effectively and significantly contribute to the public good.[1]

Universities and Community Schools is designed to help spark a worldwide informal movement that aims to overcome major community and societal problems (particularly educational inequities) by developing place-based, mutually transformative, innovative partnerships between universities and schools.

There is no subscription price for receiving *Universities and Community Schools*. We would like all those interested in the focus and purpose of this journal to receive copies. Please feel free to reach out to us at the email below.

Rita A. Hodges
Editor, UCS
Associate Director
Barbara and Edward Netter Center for Community Partnerships
University of Pennsylvania
ritaa@upenn.edu

For additional information about the Netter Center for Community Partnerships, please visit our web site at: www.nettercenter.upenn.edu

[1]University" is broadly conceived, i.e., all institutions of higher education.

TABLE OF CONTENTS

Community-Engaged Scholars & The Future Professoriate

Rita A. Hodges, Ira Harkavy, and John L. Puckett

A community-engaged professoriate would enable higher education to make greater contributions to knowledge and to finding solutions to society's most complex and important problems. Given their role in educating the future professoriate, research universities have a particular responsibility to educate their graduate students to be engaged scholars. Fortunately, many graduate students today are interested in community-engaged teaching and research and in pursuing academic careers concerned with helping to reduce racism and increasing equity and social justice.

This issue of *Universities and Community Schools* features seven articles written largely by graduate students (a number of whom recently received their PhDs) whose scholarship involves community-engaged research, particularly with local public schools. It includes the perspectives and experiences of students from a range of disciplines, geographies, and institutional types. All of the sites represented in this issue are part of the national University-Assisted Community Schools Network, and three of them – IUPUI, UCLA, and Binghamton – have been regional training centers for UACS supported by the Netter Center.[1]

We begin this issue with an article by students at our own institution, the University of Pennsylvania. Three vignettes are presented, followed by critical reflection, from PhD students in the Provost's Graduate Academic Engagement Fellowship (PGAEF) at the Netter Center. The reflections explore the practical and ethical challenges these doctoral students faced in building equitable partnerships in local university-assisted community schools. The second article comes from a recent PhD graduate and a current faculty member at the University of Binghamton who were part of an NSF-funded multi-institutional research team. They describe a unique collaborative effort between university researchers, local schools, and families to engage in engineering design practices in the home environment and to reflect on how the project complements the key pillars of community schools. The third article, from a faculty member and a recent PhD graduate from University of Tennessee, Knoxville, describes the process of creating and training a multi-generational, interdisciplinary team to engage in participatory action research with two university-assisted community schools.

Two individually authored articles are featured next. A recent PhD graduate in Urban Education Studies at IUPUI presents an autoethnography describing her personal experiences through IUPUI's Girl Talk mentoring program with underserved Black and Latina young ladies in two urban public schools. A PhD student in Social Welfare at the University of California–Los Angeles discusses her findings as part of a research team at the UCLA Center for Community Schooling. This project involves an exploratory dual-case study design examining how two urban school districts were developing systems for teacher leadership within the community school setting.

The issue then returns to Binghamton University with a co-authored piece by an undergraduate student, a graduate student, and faculty and staff from Binghamton University's Community Schools and Binghamton's Public Archaeology Facility. This NSF-funded initiative deploys an innovative approach to teaching STEM to youth in rural school districts using modules based on scientific concepts in archaeology supplemented by Indigenous knowledge. The final article is written by a team of staff members at Penn's Netter Center pursuing graduate education, who describe examples of democratic implementation research conducted at the Center involving university-assisted community schools. The authors give particular attention to the organizational infrastructure and approach needed for supporting this kind of research.

In combination, these articles powerfully demonstrate the benefits of graduate student involvement in community-engaged research, particularly engagement with local K-12 schools, on the lives of local youth and other community members as well as on the graduate students' own learning and development as academics committed to connecting scholarly expertise with the expertise of community members.

We hope that you enjoy this issue and welcome your feedback, ideas, and help in advancing university-assisted community schools and community-engaged scholarship.

[1] For information on the UACS Network, please see https://www.nettercenter.upenn.edu/UACSnetwork. For a recent discussion of UCLA's university-assisted community schools, as well as the national community school movement in general, please see Martin Blank, Ira Harkavy, Jane Quinn, Lisa Villarreal, and David Goodman, *The Community Schools Revolution: Building Partnerships, Transforming Lives, and Advancing Democracy* (Washington, DC: Collaborative Communications Group, 2023), https://www.communityschoolsrevolution.org/.

Developing Mutually Beneficial University–Community Partnerships: Graduate and Undergraduate Students Reflect on their Community-Engaged Projects

Sophie Maddocks, *University of Pennsylvania*
Abigail Dym, *University of Pennsylvania*
Mari Andrzejewski, *University of Pennsylvania*
Ava Kikut, PhD, *Harvard University*
Claire Wan, *University of Pennsylvania*
Joshua Davidson, PhD, *Oberlin College*

Sophie Maddocks is a PhD candidate at the Annenberg School for Communication at the University of Pennsylvania. Her work addresses cyber-sexual violence and its impact on youth.

Abigail Dym is a joint-PhD candidate in education policy and political science. She researches civic education, engagement, and citizen-state relationships using qualitative, quantitative, and community-engaged research methods.

Mari Andrzejewski is a member of Penn School of Nursing's Class of 2024. She is also a PhD student through the Hillman Scholars Program in Nursing Innovation, with an interest in studying interpersonal violence among adolescents.

Dr. Ava Kikut received her PhD in spring 2023 from the Annenberg School for Communication at the University of Pennsylvania and is beginning a postdoctoral fellowship at Harvard T.H. Chan School of Public Health. Her work in health communication integrates participatory action approaches with quantitative research to inform health campaigns, with a focus on addressing inequalities among teens and young adults.

Claire Wan is a third-year PhD student in Reading, Writing, and Literacy at the University of Pennsylvania Graduate School of Education. Her research interests include the literacies of children and youth of Asian descent, critical literacy and critical media literacy approaches to pedagogy, and community-engaged learning.

Dr. Joshua Davidson received his PhD in summer 2023 from Penn's Weitzman School of Design. He is Assistant Professor of Statistics and Data Science at Oberlin College. Josh's research focuses on transportation equity and geography.

Abstract

Community-engaged research is a mode of inquiry with the potential to democratize academic research by recognizing those who are most impacted by inequalities as valuable partners in the research process. To be effective, it relies on the creation of equitable partnerships between universities and communities. This article presents reflections from a group of doctoral students working to build equitable partnerships in community-engaged research projects facilitated by the University of Pennsylvania's Netter Center for Community Partnerships. Through candid reflections, each author explores the practical and ethical challenges they faced in building equitable partnerships. The vignettes in this article expose the micropolitics of community-engaged research across three different projects. Using a dialogical approach, the vignettes are followed by the critical response of two other graduate students. This article identifies a crucial "pivot point" across each project: a moment in which a community-engaged partnership could unravel. Focusing on time, training, and reflection, this article concludes by offering suggestions on navigating these moments.

Introduction: The Civic Potential for a Community-Engaged Research University

The creation and maintenance of a just democratic society requires immense changes in higher education (Harkavy, 2023). At a moment when long-standing societal inequities persist across local communities and the universities that are situated within them, it is incumbent on universities to play a central role as democratic anchor institutions (Delbanco, 2022; Harkavy, 2023; O'Meara et al., 2021; Taylor Jr. et al., 2018). Historically, social science research in local communities has relied on extractive models that reduce the agency of research participants (Fine, 2017; Paris & Winn, 2013). Enter community-engaged research. Community-engaged research is a framework that recognizes those who are most impacted by inequalities as valuable partners in research to address these inequalities. To be effective, community-engaged research relies on the creation of equitable partnerships between universities and communities. This, in turn, democratizes the research process and releases the university's civic potential.

This article brings together a group of doctoral students involved in community-engaged research projects at the University of Pennsylvania as they reflect on their experiences of building equitable partnerships. These doctoral students acknowledge that models of university-community partnerships can easily become unequitable, and seek to critically and creatively support the construction of a civic "neighborly community" (Dewey, 1927/1954, p. 213; Taylor Jr. et al., 2018) through diverse engaged research collaborations. In what follows, the researchers reflect candidly on the process of working towards these democratic goals despite practical and ethical challenges.

The community-engaged projects described in this article were developed through the University of Pennsylvania's Netter Center for Community Partnerships. Launched in 1992 to build on many years of prior community-engaged work, the Netter Center seeks to reimagine and transform Penn - and universities across the nation - as "comprehensive democratic anchor institutions" that build "sustained mutually beneficial partnerships with their communities" (Netter Center, n.d.). The center works from the belief that universities must become truly engaged and truly responsive to improving the quality of life in the local community, by working "respectfully, collaboratively and democratically" with partners. One way that the center pursues this mission is through the development of Academically Based Community Service (henceforth, ABCS) courses. These courses taught at both the graduate and undergraduate level connect Penn students with community partners to address real-world local problems. In these courses students and faculty work with "West Philadelphia public schools, communities of faith, and community organizations to help solve critical campus and community problems in a variety of areas such as the environment, health, arts, and education" (Netter Center, n.d.-a).

In 2019, the Netter Center launched a fellowship that, among other things, enables doctoral students to design and teach their own ABCS courses. The Provost's Graduate Academic Engagement Fellowship (henceforth, PGAEF) allows for selected doctoral students across all disciplines to engage in "community-engaged scholarship and related activities, including Academically Based Community Service (ABCS), participatory action research, service-learning, and learning by teaching in public schools." (Netter Center, n.d.-b). The stories told in this article reflect the experiences of three PGAEF Fellows from the 2020 cohort. Each doctoral student selected a moment from their partnership that brought into critical relief the challenges of developing mutually beneficial community connections. The three vignettes in this article explore the "micropolitics" of community-engaged research across three different projects (Smith et al. 2010, p. 413). To engender dialogue and maximize reflexivity, the vignettes are followed by the critical response of two other PGAEF Fellows from the 2021-2023 cohort.

The first vignette is by PGAEF Fellow Abigail Dym. She collaborated with Philadelphia high school students to learn about their views on and preferences for civic learning in formal K-12 classrooms, and, through community-engaged research with youth community partners (an approach referred to here as youth participatory action research [YPAR]), co-created a randomized survey to test political knowledge, efficacy, and trust in government. The second vignette, by undergraduate student Mari Andrzejewski and PGAEF Fellow Sophie Maddocks, introduces undergraduate students' perspectives on

partnership development. Maddocks' ABCS course, taught in partnership with an elementary school in West Philadelphia, focused on digital rights and online safety. The third vignette is by PGAEF Fellow Ava Kikut, who partnered with Netter Center high school internship programs to develop a YPAR curriculum focused on health communication and media campaign development. Through her ABCS course, undergraduate and high school students collaborated to identify health priorities in their peer communities, collect data, and create media messages addressing peer concerns. The vignettes are followed by a critical reflection from PGAEF Fellows Claire Wan, a doctoral student in Education developing a project that explores literacy and power in relation to Asian American youth experiences, and Joshua Davidson who conducted two iterations of an ABCS course that partnered with the Southeastern Pennsylvania Transportation Authority to develop justice-oriented transit plans in West and North Philadelphia.

These vignettes capture the challenging reality of operating within and across institutional systems that are not designed to prioritize engaged research, while the responses to the vignettes offer ideas on how to navigate this terrain

Vignette 1

Abigail Dym

Fifty minutes into our hour-long session, we finally began to make strong progress. High school students in Philadelphia were openly and passionately contributing their thoughtful ideas to research questions about political knowledge, civic education, and their preparation to be engaged in democratic life in and beyond K-12. After a comparatively slow start with long stretches of silence that threatened to dominate our precious and fleeting time together, this short-lived, free-flowing final conversation was welcomed by all and beautifully generative. Sadly, we had to end exactly on the hour so students could get to their next engagement. One student came up to me as she left the classroom: "too bad we have to go, things were just heating up."

I had the joy of working alongside dozens of young people in the 2021-2022 school year, a journey that included focus groups with students in University-Assisted Community Schools affiliated with the Netter Center and a YPAR project. My dissertation research has focused on how young people develop and define the political knowledge, skills, and dispositions needed to be participatory citizens and has aimed to bring traditional political science out of elite institutions and into public school classrooms, where policy is implemented (e.g., Lipsky, 1983) and most acutely experienced by students and teachers. Indeed, young people are policy recipients, yet are rarely viewed by politicians or policy leaders as potential policy makers (Cook-Sather, 2002). The absence of student voice from the policymaking process has deleterious implications for education policy as well as political engagement.

As a PGAEF, I hoped to facilitate focus groups and an action research project where Philadelphia students could take the lead on expressing and developing their views about civic education, the formal way in which they access political learning in public schools. This approach aligns with the value and belief that youth-centered education recognizes young people as complex learners who are anything but empty vessels when they walk through the schoolhouse gates (Dewey, 1964; Freire, 1970). These research methods, when implemented collaboratively, humbly, and in a mutually beneficial manner, can help provide a platform that facilitates student voice (Mitra & Gross, 2009; Warren & Marciano, 2018) and democratize the policymaking process (Bryk et al., 2010; Gutmann, 1987; Payne, 2008; Warren & Marciano, 2018).

This vignette about one of these focus groups at a local high school highlights two essential takeaways from this community-engaged research, particularly when it occurs during the formal school day. First, it takes time and intention to build trust. Looking back, it would have been ideal to join this particular class twice such that our first session could focus entirely on building camaraderie and trust, which may have allowed our second session to be entirely dedicated to a long and rich conversation about the research topic rooted in that mutual trust. Research shows collaboration for reform is most effective when bolstered by a cultural foundation of trust (e.g., Cook-Sather, 2002). Further, adults and leaders who show

horizontal and equitable trust to young people repeatedly help them to develop their own agency and investment in the process of building trust among each other and engaging in the research project (Warren & Marciano, 2018). Authentic trust requires time and care, and I did not allow sufficient time for this process.

Granted, we simply did not have this extra time due to external and important requirements, which leads to the second takeaway from our research. Specifically, attempting to engage in supplementary research (albeit offering great benefits for young learners) during a global pandemic that already placed enormous pressure on educators and students, led to some necessary adjustments. I was indeed only able to meet with these students one time, a nod to the constraints of returning to 'normal' schooling in a pandemic-impacted year, as well as my goal of not detracting from their required learning. This second research takeaway underscores the ethical considerations required of community-engaged researchers to learn about and center the experiences and priorities of their collaborators. In this instance, I had a responsibility not to detract from formal classroom time, while trying to balance my research aspirations and beliefs that our work together would provide positive learning for the students.

To meet our individual and mutual goals, there are creative ways I could have improved my research to make our collaborative time more mutually beneficial. How could I have shifted my own research aims to better provide for the required K-12 learning goals of students while also co-creating knowledge for my research questions with students? For example, perhaps my focus group could have more intentionally incorporated key learning standards the teacher wanted to address: this would meet the learning needs of students, the teaching needs of educators, and possibly alleviate some labor on their part as well. Provided I only had one hour, how could I have been more thoughtful in how I efficiently structured our time so students could feel it was fun and productive? These mistakes are part of the beauty and messiness of human research, but they have implications. It is paramount to recognize the value of participants' time and, particularly given the complex relationship between Penn and the School District of Philadelphia, work with exceeding care when creating research opportunities. I am grateful for encouragement to reflect on the ways in which I could have been more prepared and careful, and for my co-researchers who rose to the challenges of limited time and engaged critically and thoughtfully with the work.

Community-engaged research with high school students is an untapped resource for democratizing scholarship and education, but traditional schooling structures are not constructed to easily facilitate these partnerships. It is the job of the researcher to carefully and critically identify opportunities to navigate within existing structures and act to support the goals of schools and participants in order to genuinely and successfully provide fruitful experiences for collaborating youth.

Vignette 2:

Mari Andrzejewski, Sophie Maddocks

Friday afternoon sessions felt tiring and heavy for everyone. After a month-long delay, we (Sophie and Mari) began our community-engaged research project feeling overwhelmingly behind schedule. Knowing it would take time to build trust and develop shared research priorities, we were anxious to hit the ground running, but end-of-week sessions with our partner school kept falling flat. We just couldn't find a way to meaningfully engage with the elementary school students. With a different group of students from several different grades attending our sessions each week, the consistency and momentum we craved wasn't materializing. This feeling was compounded when our third session was canceled because of a school-wide talent show. Another opportunity missed, we thought, will this project ever get off the ground? In reality, the problem was not that the talent show was interrupting our session, but that our sessions were interrupting the students' preparation for their talent show. Despite our best efforts, we had fallen into the trap of unequitable partnership. In a recent presentation that we discussed in class, Shawnika Hull (2022) recommended seven key standards for researchers in cultivating productive community partnerships. First, participation must be equitably distributed across universities and schools. When

it isn't, research becomes a mode of data extraction—not a shared collaboration. Hull also emphasized the importance of following up on promises, responding to feedback, taking responsibility for the potential unintended harm and avoiding repeated mistakes, sharing resources, engaging early in the research process, and respecting partner expertise (2022).

Our ABCS course, "Youth, digital culture, and online harassment," was a semester-long community-engaged research project. The goal of the project was to collaborate with West Philadelphia school students to develop recommendations for addressing and preventing online harassment. Our course was structured in two ways. First, at our weekly seminars with a group of undergraduate students, we read literature on Participatory Action Research, digital inequalities, and critical internet studies. We also planned weekly fieldwork sessions, which undergraduate students delivered at our partner school. Our course principles included the following actions: practicing critical reflexivity, paying attention to power differentials, valuing the knowledge of our community partners, agitating for social change that addresses online harassment, and promoting an ethic of care in our group. Despite our best intentions, we were looking for answers to our stalled progress in all the wrong places when the best way to engage our students was right in front of us: a performance that showcased their passions and interests. As researchers, it was essential that we considered our students' "multiple literacies and out-of-school interests" (Campano et al., 2015).

As an undergraduate student participating in my first community-engaged research project, I (Mari) had a specific set of expectations about what our partnership would look like. I expected the West Philadelphia students to be excited that we were there. I wanted to impress them and learn from them. I also felt like students needed us because we were sharing information with them about how to protect their privacy online. Over time, the reality of the partnership shifted my expectations, especially when fieldwork sessions struggled to gain momentum. These shifting expectations revealed the complicated dynamics I navigated as the partnership progressed. Several undergraduate students from the class decided to attend the talent show, and this marked a turning point in the partnership. After attending the show, the other undergraduate students and I understood our students a little better, and our students trusted us (and our classmates) a little more. I returned to our course readings, specifically Paris and Winn's (2013) axioms of refusal. They argue that too often community partners are only invited to speak on their problems or pain, that there are some forms of knowledge the university doesn't "deserve", and that "research may not be the intervention that is needed" (Tuck & Yang, 2013, p. 224). I asked myself: Learning about digital inequalities and cyberbullying are personal stories that involve friends and family members. These are intimate topics that can span generations. Did I deserve to have that knowledge? What if students did not feel like they were facing online harassment? What if they did not feel impacted by digital inequalities? Did I have preconceived ideas about wanting our students to admit to needing online help so I could feel valuable to them?

We (Sophie and Mari) quickly acknowledged that our online safety curriculum was not the best intervention. It was not wanted or needed by our students, and it wasn't feasible, given that we had limited time and an inconsistent student group that changed every week. Instead, we restructured our fieldwork sessions as open spaces for students to share their experiences online in collective dialogue. Once we figured out what needed to change, elementary and undergraduate students seemed to really enjoy having the space to talk. To combat Friday afternoon fatigue, we brought food, fidget toys, and games into the classroom. This open dialogue format ensured that we didn't "superimpose" or "universalize" our own principles and interests onto students (Campano et al., 2015, p. 34). This got us closer to an equitable partnership because we weren't teaching or imparting knowledge, we were just talking and sharing. This ensured that our work was benefiting our school partners by taking the emphasis off academic, university-related expectations and outcomes (Campano et al., 2015).

Although our partnership did not achieve all of the standards outlined in Hull's (2022) presentation, we are proud of the way our group reflected and acted on our positionality, recognized our school's context, acted on feedback, respected the expertise of our partners, and took responsibility for our mistakes. Participatory Action Research can create "fugitive spaces"

in the Academy that refuse to extract from the community (Fine, 2017). However, this method is incredibly challenging, demands a relational skill set that is devalued in academia, and requires consistent engagement with the same community members (Eubanks, 2009). Our class learned a lot from each other and the local school students this semester, and we are excited to consider how we can incorporate digital performance, dance trends and multimodality into the next iteration of our partnership. Our twelve-week course marked the beginning of what we hope can be a longer-term partnership led by the needs and expertise of elementary school students.

Vignette 3

Ava Kikut

In my ABCS course, students learned and applied the tenets of Youth Participatory Action Research (YPAR). These include: legitimizing diverse sources of knowledge, facilitating power-sharing across teams of youth and adult researchers, and applying research to generating social impact (Ozer, 2017). As a core component of the course, undergraduate students facilitated weekly sessions with high school students in university-assisted afterschool internship programs in West Philadelphia. Across three engagement sites, undergraduate and high school students conducted communication research to address youth-identified health priorities. As an instructor, one of the key challenges was striking the balance between providing a supportive structure for students and creating space for authentic partnership.

In the second week of the program, high school students reported to their program director that sessions had been "dry." Students had been developing measures for a peer survey about mental health. In response to this feedback, I prepared an art project to facilitate further brainstorming for the survey. In class, I gave the undergraduate students handouts outlining the activity and allocated time to practice in class.

When we arrived at the engagement site, the high school students sat quietly at the table, art supplies scattered in front of them. The undergraduates stood at the front of the room and seemed intimidated by the silence. They read from the class handout as they explained the session agenda. The energy in the room was low and the prospect of doing art did little to inspire enthusiasm. One high school student pressed his cheek to the table. A few others looked at their phones. What would compel teenagers, with many forces at school and home competing for their attention, to focus their energy here? How could I show this energy would not be wasted?

I had the undergraduates set down the handout. We gathered around the table with the high school students. I reminded the team that they had identified mental health challenges as a major issue impacting their peers. Ultimately, we were working on understanding and addressing that issue. This activity was intended to help inform measures for a survey to help accomplish this. "So, what do you think?" Some of the high school students nodded, still quiet. "You're not going to hurt my feelings," I said. One student finally replied, "I hate surveys."

From there, each student began to contribute to the discussion. They were enthusiastic about the topic of mental health and helping peers but expressed reservations with surveys as an approach to addressing the issue. They shared that they didn't think their peers would respond honestly to a survey, didn't trust surveys, or believed their responses wouldn't matter. We used the rest of the session to brainstorm ways we could make data collection more helpful and engaging for high school students. Ultimately, this feedback informed our final study design—a peer survey would still be created, but it would include student-created videos and information about free mental health support resources throughout. While I could not rewrite the syllabus to shift entirely away from survey research, future iterations of the university-assisted high school internship program would apply the students' feedback to focusing on other approaches to addressing mental health—including peer-to-peer training and research focusing on environmental determinants of health.

Undergraduate students later shared they would have missed this opportunity for mutual learning had I not given them permission to deviate from the plan. One student reflected, "I feel like we wouldn't have probed further, at least not for as long as we did if Ava hadn't been there because we would've felt pressure to complete the activity." For each previous session, I had given explicit instructions to students because I thought it would help the program run smoothly. This had backfired. The undergraduate students were accepting my direction because I was the instructor. This is the dynamic that was expected, ingrained into all of us, and one that takes great care and time to alter. Turning to an art project was a misguided attempt to engage students. Instead, focusing on the purpose, explicitly encouraging students to express their opinions, and creating space to listen, were necessary steps toward fostering authentic participation.

In the following class, we spent the bulk of our engagement session preparation going over the overall purpose of the YPAR projects—to learn from each other, to collaborate, and to address a health issue impacting our community. I had the undergraduate students each share their personal intentions for participating in the YPAR program. I would no longer give detailed handouts. I wanted students to feel confident articulating the purpose of each session with the high school students and letting that purpose guide them.

This focus on intention-setting was effective. After the next engagement session, one undergraduate student wrote:

This was a huge improvement from last week!...We discussed why we are here and what we hope to gain from this experience. Being that we were in a circle, it really opened up the space to set our intentions...I think the students loved it and even the ones who were distracted last week were engaged. This week was amazing!

To be clear, this was one of many learning moments—participation would ebb and flow for each team—but the pivot was productive in shifting our focus to the "why" (our shared purpose), and creating space to determine the "what" (how we would accomplish that purpose).

As an instructor and researcher, I drew two critical takeaways from this experience. First, from the perspective of youth-specific Participatory Action Research, it may be tempting to jump to seemingly youth-friendly activities when things get "dry." However, I found recognizing that youth participants care for their peers and communities and have a deep desire to do good, as well as creating a flexible and honest space to exchange ideas, was the most effective approach to fostering authentic engagement.

Second, the position of instructors, researchers, students, and youth participants in societal hierarchies of power and privilege cannot be ignored in the research process. Those who enter YPAR programs in positions of power—instructors, researchers, and others affiliated with resource-rich institutions—must consider how our actions may either inhibit or encourage committed involvement from community partners. One of the roots of YPAR is Freire's (1970) concept of "co-intentional education"– a process of learning in which teachers and learners recreate knowledge by engaging in collaborative reflection and action (p. 56). It is co-intentional education that stimulates the committed involvement of all parties (Freire, 1970). Co-intentional education requires a radical restructuring of the space in which research and education take place. Within YPAR programs, we must consistently assess how racial and socioeconomic dynamics influence authentic engagement and take action to shift these dynamics.

It may seem more efficient for those who typically occupy positions of power to take a didactic role in the research process. Without awareness of this default dynamic, and intentional commitment to tackling it, we may find ourselves unintentionally writing a script for students to follow. This limits space for youth partners to truly contribute to the process of knowledge creation. Ultimately, if we do not show youth that we see them as deeply knowledgeable partners by including them in each phase of the problem-solving process, we miss the opportunity to maximize learning and impact.

Discussion: Responsive Community-Engaged Research: Centering Trust and Participant Perspectives

Claire Wan and Joshua Davidson

A fundamental component of community-engaged research is the primary focus on community needs and interests, and as scholars engaged in various partnerships, we noticed the tensions present in these vignettes around navigating and negotiating the intentions of scholar-researchers and the participating community members. Many methodological paradigms that engage communities may not always adequately ground the interests, needs, and perspectives of its members, and to cultivate ethical and professional research partnerships, we must emphasize the significance of building relationships rooted in trust and care (Campano et al, 2015). The vignettes highlight how our colleagues recognized the need and dedicated intentional time to nurture trust, to understand and collaborate with their community members in meaningful, mutually beneficial ways. Their research experiences underscore the substantial amount of time required for researchers to engage with and develop trusting relationships. In fact, their recognition of and focus on the relational work in their partnerships strengthen and support their collaborative research.

Our colleagues grappled with the dangers of the "unequitable partnership," reflecting on ways their research and participation considered the ethics of power distribution that are often inherent in academic research. This required constant reflection and interrogation into their research practices, and the ways in which their decisions and methods impacted their community members. These concerns contended with critical questions about how to create a more horizontal and collaborative relationship, rather than the traditional research paradigms of data extraction. The imbalances or misalignment between the graduate student fellows' and undergraduate students' questions and goals for their project, and those of the participating community members (which happened to be elementary school or high school students in all three of these cases) greatly influenced our colleagues' choices. They had to continually reconsider how to adjust their projects to be responsive to their partners. Our colleagues needed to ask themselves the purpose, focus, and goal of their research throughout their partnership, and how they could bring transparency to the research process. They acknowledged that open, honest communication about all parts of the process helps to create spaces that welcome collaborative inquiries. This communication was necessary to gain insight on participant perspectives to find and re-center alignment between the researcher and the community members. As peers and equals, they were better able to co-construct knowledge and to generate conversations toward action that would feel relevant to the issues raised of justice and equity.

Across the three vignettes, we were struck by the common need by our colleagues to "pivot" midway through the process. Whether this was for the last 10 minutes of an hour-long session, at the inflection point of a semester, or over the course of a given unit of learning, each vignette described a moment when the researcher needed to change course as something in their research plan wasn't "landing" – that the original design did not reach the students in the intended way. For those of us who care about, and participate in, community-engaged research, these kinds of moments define the work we do. If we are interested in truly engaging academic work with the community, we have to be able to respond to diverse needs (as discussed earlier), and one of the best ways to do this is by changing course when the approach we thought would match turns out to miss.

Pivoting defines our work as engaged scholars, but also raises substantive challenges to the frameworks we deploy to conduct studies, analyze data, and eventually disseminate results. Perhaps the most pressing of these issues is that of research design, and within this broader umbrella, research methods. We see in the vignettes, and in engaged scholarship more generally, a central contradiction between reflexive/responsive research, and the overarching research paradigms that, at least in more quantitative spaces, ask for clearly defined variables and employ methodologies tailored to controlled experiments. In classic experimental research, the moment of pivoting could make the entire dataset (or at least the data collected post-pivot) unusable. By changing the research design midway through the process, an academic with a traditional definition of the

scientific method could, perhaps reasonably, critique the study as introducing bias into the data collected. Shifting the study design at a key point when the data collection protocol was no longer operable also makes constructing key variables quite difficult, as measures that were defined pre-pivot are no longer clearly related to even those same measures post-pivot. And, finally, accounting for the way that the researcher defined the pivot in the dataset and the way that, in the vignettes, the students responded positively to these changes, is an enormously difficult task. These issues together raise a simple question, with complex implications: which part of the pivot worked, and why? Answering this question, and then operationalizing it in our data and analysis, requires us as engaged scholars to not only apply the care and attention we give to being responsive members of the communities where we work, but also to be expansive and creative thinkers about the ways in which we conduct our research. What the vignettes put forward is a challenge to come up with ways in our research designs that account for interruptions and how best to be nimble in our analytic approach (Harkavy et al., 2015; Nagel, 1961). This also means finding a scholarly community in which to share in the joys and struggles that come with engaging at this frontier of study (such as the rich conversation around mixed methods designs and the "pragmatic" worldview in research (Creswell & Creswell, 2018)).

Conclusion: Three Starting Points for Improving Partnerships

We find in these vignettes and the issues they raise around research design and responsiveness to research partners outside the academy, a call to improve training for community-engaged scholars. We suggest three initial areas in which to start:

Factoring in Time

All the vignettes highlighted the importance of time in building meaningful relationships with their community partners. A significant portion of their time together was focused on getting to know their participants in order to engage the youths' interests and passions. The constraints of limited time and less than ideal scheduling was constantly negotiated by the graduate student fellows and their partners. Community-engaged research that truly centers its members must prioritize the varied, often lengthy, amounts of time required to cultivate trusting relationships with the participants involved. This may require creative thinking around how to treat relationship building as part of, not a precursor to, the research process.

Ongoing Training in Effective Community-Engaged Research Methods

As exemplified in some of the vignettes, traditional research methods are not always in alignment with community members and how they wish to engage with the issues at hand. As community scholars, it is imperative to have opportunities for ongoing training in effective, flexible community-engaged research methods, ranging from qualitative and quantitative to mixed-methods research to share with our members. We believe there is a major opportunity for cross-institutional collaboration and intensive training in this regard; similar to how there are intensive trainings in diverse quantitative methods at many institutions (for example, the Inter-university Consortium for Political and Social Research at the University of Michigan), there should be significant opportunities for community-engaged scholars from across the world to gather and share strategies, challenges, and new work.

Intentional Spaces for Researcher Reflection

A key aspect of community-engaged research is continuous researcher reflection, where we might consider our respective positionalities, process of learning, and evolving research projects. A call for intentional spaces for community scholars to meet regularly and focus solely on scholars sharing their experiences and questions with other similarly engaged colleagues could allow for us to process collectively. This final recommendation is perhaps the most important: this kind of work demands a patient approach to research that necessitates colleagues and shared learning. Following years of isolation from the pandemic, it is imperative that we now turn our intellectual gaze outwards and take a stance open to ever-more sharing of knowledge. We cannot conduct community-engaged research alone, either solely within our disciplines or as individual

scholars. Interdisciplinary, collaborative environments are where this work can thrive, and we look forward to cultivating new methodologies, research, and relationships with our colleagues and communities now and into the future.

These vignettes and their responses originate from the perspectives of PhD students and, as such, only tell a slice of the story; yet, they seek to capture the humility and critical reflection required of those committed to this work, with potential to bridge research, policy, and practice in authentic ways. The PGAEF program provided a unique opportunity for these students to lead well-funded and well-resourced community-engaged projects while benefiting from the support of expert faculty advisors, community partners, and Netter Center staff. This program also developed among graduate students a scholarly community that is promoting community-engaged research, prioritizing equitable partnership, and offering tangible tools for building it.

References

Bryk, A. S., Sebring, P. B., Allensworth, E., Luppescu, S., & Easton, J. Q. (2010). *Organizing schools for improvement: Lessons from Chicago.* Chicago, IL: University of Chicago Press.

Campano, G., Ghiso, M.P., & Welch, B.J. (2015). Ethical and professional norms in community-based research. *Harvard Education Publishing Group, 85*(1), 29-49.

Cook-Sather, A. (2002). Authorizing students' perspectives: Toward trust, dialogue, and change in education. *Educational Researcher,* 31:4, 3-14.

Creswell, J. W., & Creswell, J. D. (2018). *Research design* (5th ed.). SAGE Publications.

Delbanco, A. (2022). Endowed by Slavery. *The New York Review.* Retrieved from https://www.nybooks.com/articles/2022/06/23/endowed-by-slavery-american-universities-delbanco/.

Dewey J. (1927/1954). *The Public and its Problems.* Denver, CO: Swallow Press/Ohio University Press.

Dewey, J. (1964). My pedagogic creed. In R. D. Archambault (Ed.), *Dewey on education* (427-439). Chicago: The University of Chicago Press.

Eubanks, V. (2009). Double-bound: Putting the power back into participatory research. *Frontiers: A Journal of Women's Studies,* 30(1), 87-137. https://doi.org/10.1353/fro.0.0023

Fine, M. (2017). *Just research in contentious times.* Teachers College Press. https://doi.org/10.1177/0361684318779782

Freire, P. (1970). *Pedagogy of the Oppressed.* New York: continuum.

Gutmann, A. (1987). *Democratic Education.* Princeton, NJ: Princeton University Press.

Harkavy, I., Cantor, N., and Burnett, M. (2015). Realizing STEM Equity and Diversity through Higher Education-Community Engagement. *The Netter Center.*

Harkavy, I. (2023). Dewey, Implementation, and Creating a Democratic Civic University. *The Pluralist, 18*(1), 49-75.

Hull, S. (2022, May 27). *International Communication Association's Engaged Research Panel* [Conference Presentation]. 2022 International Communication Association Conference, Paris, France.

Lipsky, M. (1983). *Street-Level Bureaucracy: The Dilemma of the Individual in Public Service.* New York: Russell Sage Foundation.

Mitra, D. L., & Gross, S. J. (2009). Increasing student voice in high school reform: Building partnerships, improving outcomes. *Educational Management Administration & Leadership*, 37, 522–543 doi:10.1177/1741143209334577

Nagel, E. (1961). *The structure of science : problems in the logic of scientific explanation.* Harcourt Brace & World.

Netter Center for Community Partnerships (n.d.-a) *About The Center.* https://www.nettercenter.upenn.edu/about-center

Netter Center for Community Partnerships (n.d.-b) *Provost's Graduate Academic Engagement Fellowship at the Netter Center* (PGAEF@NC). https://www.nettercenter.upenn.edu/get-involved/pgaef

O'Meara, K., Bawa, A., Garcia, H., Harkavy, I., Hodges, R., & Van't Land, H. (2021). The Fight for Diverse, Inclusive, Antiracist, and Just Democracies. *Inside Higher Ed.* Retrieved from https://www.insidehighered.com/views/2021/05/04/higher-ed-must-play-role-creating-antiracist-and-just-democracies-opinion.

Ozer, E. J. (2017). Youth-Led Participatory Action Research: Overview and Potential for Enhancing Adolescent Development. *Child Development Perspectives,* 11(3), 173–177. https://doi.org/10.1111/cdep.12228

Paris, D., & Winn, M. (2013). *Humanizing research: Decolonizing qualitative inquiry with youth and communities.* SAGE.

Payne, C. M. (2008). *So much reform, so little change: The persistence of failure in urban schools.* Cambridge, MA: Harvard University Press.

Smith, L., Bratini, L., Chambers, D., Jensen, R and Romero, L. (2010). Between Idealism and Reality: Meeting the Challenges of Participatory Action Research. Action Research - ACTION RES. 8. 407-425. 10.1177/1476750310366043.

Taylor, Jr., H. L., Luter, D. G., Miller, C. (2018). The University, Neighborhood Revitalization, and Civic Engagement: Towards Civic Engagement 3.0. *Societies, 8*(4),106, 2-21. Retrieved from https://www.mdpi.com/2075-4698/8/4/106.

Tuck, E., & Yang, K.W. (2013). R-words: Refusing research. In D. Paris & M.T. Winn (Eds.), *Humanizing Research. Decolonizing Qualitative Inquiry with Youth and Communities.* (pp. 223-237). SAGE Publications.

Warren, C. A., & Marciano, J. E. (2018). Activating student voice through Youth Participatory Action Research (YPAR): policy-making that strengthens urban education reform. *International Journal of Qualitative Studies in Education*, 31:8, 684-707.

Engineering a University–Community School Partnership: An Elementary Engineering Program's Alignment with the Community School Model

Peter N. Knox, Ph.D. – *University of Vermont*
Amber M. Simpson, Ph.D. – *Binghamton University, State University of New York*

Dr. Peter Knox is a recent graduate of the Community Research and Action doctoral program at Binghamton University and current postdoctoral associate in the College of Education and Social Services at the University of Vermont. His research interests include rural family-school-community partnerships, school climate and culture initiatives, and school policy implementation.

Dr. Amber Simpson is an Associate Professor of Mathematics Education at Binghamton University. Her research interests include examining individual's identity(ies) in one or more STEM disciplines, understanding the role of making and tinkering in formal and informal learning environments, and investigating family engagement in and interactions around STEM-related activities. .

Abstract

The Families Engineering Together in Communities and at Home (FETCH) project represents a unique collaborative effort between university researchers, local schools, and families to engage in engineering design practices in the home environment. Engineering education, particularly at the elementary level, has been historically limited. Further, the inclusion of families and familiar home environments is typically nonexistent. The FETCH project breaks this trend and purposefully positions parents, caregivers, and the home environment as essential elements to the provision of engineering learning opportunities for young children. In this way, the FETCH project aligns with the core principles and pillars of the community school approach and represents a bridge between this approach and elementary STEM engineering content. This article seeks to outline the challenges of elementary engineering education, the importance of family and community engagement in learning, and how the FETCH project acts to address ongoing challenges in the field. Reflection upon the past four years of program delivery is provided, including challenges and possible directions for future programming and research. We contend that the significance of this article lies in the potential for others to consider how elements of FETCH can be a component of a community school.

This material is based upon work supported by the National Science Foundation under Grant No. 1759314 (Binghamton University) and Grant No. 1759259 (Indiana University). Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

Introduction

This article aims to serve two primary purposes. The first is to highlight a unique elementary engineering research program that provides exposure to the engineering design process for elementary-age students and their families, within familiar, out-of-school contexts. The second purpose is to reflect on the unique content and structure of the project and how it aligns with and complements the key pillars of community schools. It is our belief that the work conducted within this project may offer insight and inspiration for future university-community school partnerships that support and center family engagement. Particularly for STEM disciplines and underrepresented content areas such as engineering, the following information may prove useful and contribute to understanding what may work best or be adapted to meet the various needs of diverse family-school-community partnerships.

STEM and Engineering Education

STEM (science, technology, engineering, mathematics) has become a ubiquitous acronym in the United States in prekindergarten – 12th grade (PK-12) education. The past two decades have seen a rapid increase in the number of STEM-oriented programs and curricula offered within classrooms. This is in large part due to increasing calls for enhancing student proficiency in content critical to 21st-century skills and careers (Kelley & Knowles, 2016; NRC, 2011). Further, Next Generation Science Standards (NGSS) have helped to propel STEM-related content and coursework to the forefront of many educators' and school leaders' minds as societal and education policy shifts continue to emphasize innovative career and industry pathways for students (Allen & Penuel, 2015; Committee on STEM Education, National Science and Technology Council, 2013; Mohr-Schroeder et al., 2020).

The nature of STEM education and the opportunities provided for students is heavily dependent upon several factors that exist within a school or district (Thibaut et al., 2015). These factors work in tandem with external elements and influences on schools and students including community type, resource availability, and proximity to industry or experiential learning opportunities (English, 2017; Finkel, 2017). The nature and frequency of STEM curriculum and programming have also been found to differ based on grade and age levels (English, 2017). Middle and high school students continue to receive greater exposure to STEM content relative to elementary students (Madden et al., 2016). Despite this discrepancy, greater attention is beginning to be paid to STEM education and exposure during younger years and the way that may shape student interests, identity, and future education or career focus during later life (Simpson & Bouhafa, 2020; Wieselmann et al., 2020).

One challenge with the provision of STEM education and opportunities that exists at all grade levels is the unequal focus and attention paid to the various disciplines within the broad field of STEM. Science and mathematics refer to core content areas that have been traditionally taught in schools. Technology has become a universal and arguably essential element to all types of teaching and learning in PK-12 classrooms (Liu et al., 2017). Yet, the field of engineering remains underrepresented or unincorporated in the same ways as other STEM disciplines (DiFrancesca et al., 2014; English, 2017). The lack of engineering content in schools may be caused by a number of factors. One often noted challenge includes teachers feeling uncomfortable or unfamiliar with engineering and their ability to teach engineering concepts (Hammack & Ivey, 2019; Utley et al., 2019). Lack of time and resources for blending engineering content into an already established curriculum has also been identified as a barrier for many educators (Douglas et al., 2016). Further, although included within the NGSS, some scholars argue that such standards still focus predominantly on science and do not include full engineering standards (Moore et al., 2015). These and other persistent challenges to the inclusion of engineering content or concepts in PK-12 classrooms, particularly within elementary grades, have spurred investigations into alternative methods and locations for providing younger children with engineering learning opportunities. Educators and researchers have begun to look at partnerships that go beyond the classroom, including out-of-school learning (Dabney et al., 2012). Families and local

community organizations have emerged as key support partners in the provision of engineering education, as well as in enhancing the understanding and personal relevance of engineering to young learners (Douglas et al., 2016; Knox et al., 2022).

Family and Community Involvement

The benefits derived from family and caregiver engagement in education have been well documented (Englund et al., 2004; Jeynes, 2005; Ma et al., 2016; Sui-Chu et al., 1996), particularly around a student's level of academic success and proficiency (Avnet et al., 2019). Success during elementary school years, specifically, has been directly associated with academic achievement during middle and high school years (Núñez et al., 2015). Previous scholarship also notes that increased involvement from parents or caregivers results in increased academic motivation and success (Henry et al., 2011; Usher & Kober, 2012), which may shape postsecondary trajectories and career choices. Thus, parental involvement and support during elementary school years have been emphasized to support the ongoing success and achievement of students throughout PK-12 education (Li & Fischer, 2017; Ma et al., 2016). Such engagement with young learners is shaped by several factors. Scholars have noted that the socioeconomic status (SES) of caregivers and families is highly correlated with a parent's level of involvement in their student's learning and classroom settings (Benner et al., 2016; Cheadle & Amato, 2011). Parental networks have also been identified as a factor that shapes involvement in schools and classrooms (Li & Fischer, 2017). The more connected and engaged with fellow caregivers, the more likely a parent is to be consistently involved in their child(ren)'s learning process and classroom (Li & Fischer, 2017).

Caregiver and familial involvement often entail a number of different actions or behaviors. Sui-Chu and Willms (1996) suggested several elements that are critical to successful parental engagement and benefit both behavioral and academic student outcomes. These elements include discussion, supervision, home-school connections, and volunteering in schools. Elements such as these can contribute to overall familial involvement that facilitates child development (Ma et al., 2016; Park & Holloway, 2017). Home discussion entails factors such as academic or learning conversations with both mothers and fathers, as well as discussion around school programs or various activities in which children may be involved (Sui-Chu & Willms, 1996). Supervision implies a level of caregiver involvement in structuring time outside of school and regulating activities and social opportunities to help develop time management and independence, as well as opportunity and interest (Ma et al., 2016). Connections between homes and schools or classrooms suggest regular contact and communication between caregivers and their child(ren)'s teacher or school about programs, learning opportunities, social behavior, and development (Epstein, 1987; Griffiths et al., 2021). Finally, school volunteerism implies a level of caregiver engagement through activity and participation in parent-teacher organizations and school events that provide them with an opportunity to demonstrate their engagement, investment in learning, and the importance of school/education to children (Povey et al., 2016; Van Voorhis et al., 2013).

While these and other caregiver engagement factors can each impact student development and success, the ability to prioritize and achieve these various elements can be challenging for families, particularly for single parents, low-income families, and individuals who come from other disadvantaged or marginalized backgrounds (Fischer et al., 2019; Kim, 2009). As such, finding ways for diverse families and caregivers of all backgrounds and circumstances to be engaged in their child(ren)'s schooling and development is an issue of equity in learning and opportunity. Looking for alternative ways to bring families and caregivers into the fold and engage in learning, including STEM and engineering-focused opportunities, has the potential to facilitate the incorporation of relevant, applicable engineering content into traditional curriculum and provide more equitable opportunity and exposure (Gilbert et al., 2020).

Similarly, the involvement of community members and community-based agencies in schools and elementary learning has been shown to support a number of positive outcomes for children (Allen et al., 2020; Sanders, 2003). Sanders (2003) described community involvement in schools as "...connections between schools and individuals, business, and formal and informal organizations and institutions in a community" (p. 162). The past few decades have seen an increasing amount of

responsibility placed on schools and educators to fulfill the needs of children and families, beyond academics (Maier et al., 2017). Scholars have suggested that the vast majority of resources and support that children and families may need, which schools are being increasingly expected to provide, can often be found within organizations and agencies already in place in the broader community (Epstein, 1995; Houser, 2016; Maier et al., 2017). As students and families become increasingly demographically diverse, both academic and workplace expectations are also continuing to evolve. Reexamining the often-siloed nature of many schools and uncovering innovative ways to engage with a relevant community for a diversifying student population may begin to support improved school functioning through enhanced familial and student outcomes (Houser, 2016).

For STEM and engineering education within PK-12 classrooms, collaboration with community-based professionals and organizations presents a unique opportunity to engage in place-based and relevant STEM engineering learning, in familiar environments (Tytler et al., 2018). Informal STEM learning in places such as the home or community-based organizations can contribute to connections between formal learning and critical skills for subsequent learning and development (Hurst et al., 2019). This form of localized and pertinent engagement for young STEM learners may provide a more relevant and understandable approach to STEM concepts, as well as enhance identification with and interest in fields and disciplines such as engineering (Burrows et al., 2018; Tytler et al., 2018). Through community-engaged programming and experiential learning, often marginalized students and families who remain chronically underrepresented in fields such as engineering may gain more opportunities to participate in STEM disciplines (Thiry et al., 2017). Several initiatives and programs have been developed to bridge STEM learning with local communities and higher education assets and resources that may be available to a school. Charter schools and STEM-specific lab schools (Eisenhart et al., 2015; Saw, 2019), programs such as mobile "fab labs," and grant-funded curricula such as Project Lead the Way (Stebbins & Goris, 2019) are just a few examples. Yet, previous research has noted that the efficacy of certain programs and initiatives is mixed and that sustainability remains an issue for many schools and communities working to enhance STEM learning (Stohlman et al., 2012). Further, while partnerships between schools and community agencies and resources are valuable, the critical element of family involvement is often missing from programs working to build STEM ecosystems (Penuel et al., 2016). This reality calls for further investigation and testing of programs and methods for combining both family and community involvement in STEM education and learning, in order to maximize the benefit for students, particularly at younger ages.

To this end, the current article seeks to describe a recent and arguably successful attempt to make engineering education and exposure to the engineering design process more accessible and approachable for elementary-age students and their families. Further, this program was a demonstration of a successful partnership between a university, local schools, families, and community-based organizations and professionals in rethinking how STEM and engineering learning might take place. The following sections will outline the program in greater detail, noting the initial aims and scope of the project and how it evolved over the course of four years. Next, we discuss the ways that a program such as this represents a unique alignment with the values and foundational elements of the community school model, which seeks to bridge families, schools, and communities. Finally, some barriers and challenge points will be discussed, and how those have highlighted certain ways this program aims to continue and directions that appear ripe for further and more detailed research and investigation.

The Families Engineering Together in Communities and at Home (FETCH) Project

There are limited information and data regarding the engagement of caregivers and other family members in home environments during STEM and engineering programs and content implementation (Simpson et al., 2021). This paucity formed the primary motivation for the Families Engineering Together in Communities and at Home (FETCH) project, a collaborative partnership with Binghamton University and Indiana University. The increasingly diverse United States population, combined with the chronic underrepresentation of minorities, women, and other marginalized groups

in STEM disciplines (NSF, 2021), also drove our interest in implementing engineering programming in familiar home environments. Thus, the overarching aim of this grant-funded project was to develop, implement, and refine a program that addresses the guiding question, *"In what roles and in what ways do parents, mentors, caregivers, and other community members motivate students to become aware of, interested in, and prepared for STEM careers?"*

To address this guiding question, our research team focused on three specific aims which helped frame the program implementation, as well as our analysis and evolving research directions. Our first aim centered on the program specifically and the unique aspects that contributed (or did not) to its success. Aim one was to investigate the various features of the FETCH project that best-supported participation and implementation of the engineering design cycle and engineering practices amongst caregivers and children within their home environments. Aim two centered on the experience and perspectives of elementary-age children. This aim was to investigate changes in children's engineering identities through learning about and engaging in engineering design practices, with their caregivers, in their home environments. Finally, aim three focused on parents and caregivers, and the changes they may have experienced through participation in the program. This aim sought to specifically investigate shifts in caregiver views of engineering and ways they might support their child(ren) in engineering design practices or stages of the engineering design cycle. Further, we sought to understand potential changes in their beliefs or perceptions of engineering as a viable option for their child(ren) to consider for further study, a degree, or an eventual career.

Over the course of the program, which ran in two US locations (Indiana and New York) between January 2019 and June 2022, participating families were demographically diverse in several ways. Approximately half of the families self-identified as either Asian, Black, or two or more races, and roughly half of participating children, who ranged from 1st-7th grade, self-identified as female. Further, the level of education or professional experience that participating caregivers had with STEM disciplines or engineering ranged across a wide spectrum. Some caregivers had advanced degrees in engineering or related fields, while others had pertinent experience working in construction, architecture, or related trades. Many caregivers had no experience or exposure to engineering processes and worked in fields such as social work, special education, and cinema. The socioeconomic status (SES) of participating families also ranged from low (i.e., receiving free or reduced-price lunch) to high (i.e., familial income greater than $75,000/year). Collectively, over 100 participating children and their caregivers across each year of the FETCH project represented a diverse array of family backgrounds, experiences, and demographic characteristics, many of which align with populations that remain underrepresented within STEM and engineering, in particular (Capobianco et al., 2011).

Most data collected through the FETCH project came from participating families working together on two primary program components.[2] The first component of the program consisted of take-home engineering design kits developed by the research team. Each take-home kit centered on a different type of project and included basic materials (e.g., pipe cleaners, batteries, alligator clips) and simple tools or equipment needed for building (e.g., hot glue guns, scissors, pliers). Children and caregivers engaged in kits together, asynchronously recording their progress through the engineering design cycle using provided tablets and either individual Zoom links or Sibme. Sibme (2022) is an app that allowed for video recording and video sharing with researchers. The second component revolved around a challenge or problem that children and families identified within their home or community. Using the same principles and methods learned while using the take-home kits, families recorded themselves working through each of the engineering design stages (e.g., problem identification, solution brainstorming, prototyping) for their individual projects. Each component of the program occurred alongside

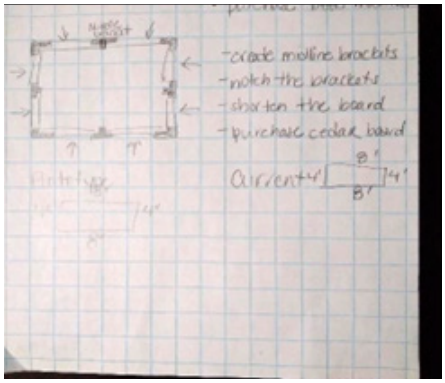
[1] The FETCH research team is comprised of faculty and doctoral-level students at two partner institutions – Binghamton University (SUNY) and Indiana University, Bloomington – working jointly under an NSF-funded research grant focused on elementary STEM engineering. University partners developed and facilitated the FETCH program both in-person and virtually via online platforms over the course of four years.

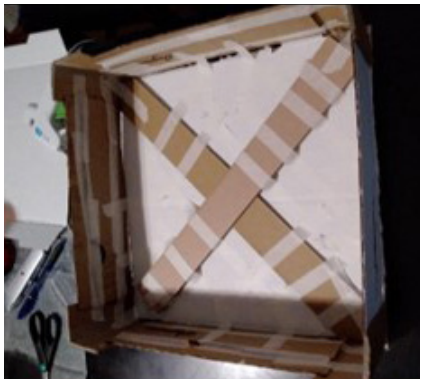
[2] Further examples of take-home kits, facilitation guides, individual participant projects, and program information can be found on the FETCH project website at https://athomeengineers.com/.

monthly "show and tell" group meetings facilitated by university partners, during which questions could be asked, children and families could explain their processes, and work collaboratively to offer advice and encouragement to other families. Example prototypes from take-home engineering kits provided to participating families can be seen in Figure 1. Participants' individual engineering project examples can be seen in Figures 2 and 3.

Figure 1: The Paper Roller Coaster (left) and The Grabber (right) take-home engineering kits.

Figure 2: Depiction of a participating family's individual engineering design for a soap dispenser holder that allows for all soap within a bottle to be used.





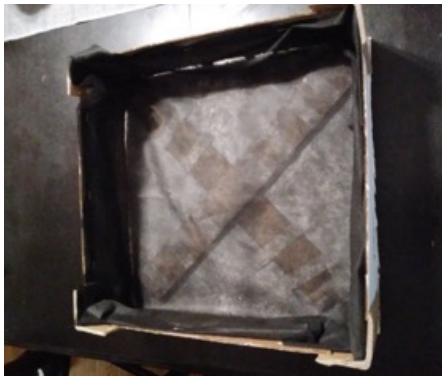


Figure 3: A participating family's design of an eco-friendly and more stable garden box to replace their backyard garden structure.

Alignment with the Community School Model

The community school model provides a unique framework for examining the FETCH project. The Coalition for Community Schools and the Institute for Educational Leadership (IEL, 2021) define community schools, stating, "A Community School is a public school—the hub of its neighborhood, uniting families, educators and community partners as an evidence-based strategy to promote equity and educational excellence for each and every child, and an approach that strengthens families and community" (p. 1). This model of family-school-community partnerships is often further delineated through the inclusion of defining characteristics or "pillars" that represent fundamental elements of community schools that support student success (Maier et al., 2017). These pillars include integrated student supports, expanded learning time and opportunities, collaborative leadership and practice, and family and community engagement (Maier et al., 2017). While the FETCH project was not originally designed with community school pillars in mind, it represents a method of family engagement and community partnership that aligns with the core principles of community schools. As both authors' experience and engagement with community school frameworks and programs expanded over the past several years, various connections and overlaps between the FETCH program and community schools became more evident and a primary motivation for evaluating the program. Through each iteration of the FETCH project, we gained greater insight into ways various content and programming might be implemented to support both students and their families and to further integrate community resources into schools and educational practices.

Integrated Student and Familial Supports

One defining feature of community schools is the integrated student supports provided within schools and in partnership or coordination with community members, agencies, or resources. Most often focused on the inclusion of various support services and needs of students and families beyond academics, this pillar of community schools is influenced by the various needs and challenges faced by families within the community (Bronstein et al., 2019; Oakes et al., 2017). Maier and colleagues (2017) elaborated upon this facet of community schools, noting that the coordination of services for students that target both academic and non-academic success fosters constructive relationship development and addresses potential gaps in student or familial support and engagement.

Our team took a novel approach to this pillar by going beyond the school as the primary hub and focusing on integrating student support within the home environment. We further adopted a perspective that included the provision of unique experiences and learning opportunities as methods for providing extended support and options for students and their families. Within the context of the FETCH project, the gap in student and familial support identified and addressed was the deficit in engineering-focused opportunities and experiences that schools can provide. In this case, schools and community organizations served as co-facilitators for integrating support and services into home environments. Many families that engaged in the program indicated that the opportunity to work collaboratively with their children and engage in new learning was a primary motivator for participation. For example, Briana and her two children Bobby and Deena participated in the most recent iteration of the program. Upon reflecting on their experience, Briana said her intentions and goals for their participation included "...exposure to different things, different careers out there. We don't have any engineers in the family, so it was a good eye-opener for them."

A defining feature of the FETCH project was the close partnerships with school and community partners, including school social workers, community school coordinators, and local librarians. Using a wide range of communication mediums including social media, newsletters, and email outreach by teachers, key partners helped identify children and families who may be interested in STEM and engineering programs and would benefit from a low-cost and accessible program conducted primarily in the home environment. Maier and colleagues (2017) noted, "Integrated student support strategies can not only improve learning conditions within a school but also create institutional structures and supports within communities, countering inequalities in opportunities that impede learning for children living in poverty" (p.

[5] https://medicine.iu.edu/indianapolis/service-learning/outreach-clinic/volunteer

21). For example, university and community collaborators helped to provide what we called "engineering encounters." These virtual encounters brought children and families in direct contact with engineers, engineering graduate students, and various genres of engineering. This type of student support and learning experience falls along a continuum of tailored services and opportunities that are based specifically on community needs and interests (Bronstein & Mason, 2016). In this way, the FETCH project utilized a student support strategy based upon key information provided by school partners, participating family interests, and assessments of school and community needs or unmet opportunities.

Another distinguishing feature of the FETCH project was the attention paid to supporting caregiver inclusion and project participation. Elements of the FETCH project experience were developed and implemented with the perspective that caregivers can be unique and influential educators and collaborators, yet also face various challenges or barriers to supporting their child(ren)'s learning. Aligned with the integrated student and familial support pillar, purposeful actions were taken to provide ease of access and participation regardless of a family's circumstances. These included direct home and school deliveries of supplies, as well as the use of recyclable materials or common household items. The use of online communication tools also allowed for families of limited means and few resources to engage in interactive, collaborative engineering learning together as a family. Further, each engineering kit provided two guides – one directed toward caregivers and the other toward children. The caregiver facilitation guide included questions specifically for adult family members and suggestions for ways to connect the kits and materials to additional math and science learning resources. Example language and portions of a caregiver facilitation guide are shown in Figure 4.

Figure 4: Example language and support suggestions from the caregiver facilitator guide in The Rain Gauge take-home engineering kit.

Expanded and Enriched Learning Time and Opportunities

A second pillar of the community school model describes learning time and opportunities that extend beyond the traditional classroom setting and the typical school day. Afterschool and summer learning programs are often provided as examples of such opportunities that children and families may take advantage of to supplement and enrich student learning and development (Sliwa et al., 2018; Young et al., 2017). Maier et al. (2016) described expanded and enriched learning time and opportunities as providing "...students with more time for learning and opportunities to develop academically, socially, emotionally, and physically in ways that complement, but do not replicate, activities in the regular school day/year," (p. 36). The FETCH project aligns with this characteristic of the community school model and filled a persistent gap in out-of-school and extracurricular opportunities. For example, previous research indicates that schools and educators often struggle to provide diverse or alternative learning experiences in a variety of content, due to limited time and resources (Matlock et al., 2016; Scogin et al., 2017). Not only did this program give access to content and concepts to which many students had not been previously exposed, it brought the learning experience into the homes and familiar communities of children and families. In this way, novel content was made more accessible and relevant to young learners, and simultaneously provided opportunity for familial collaboration.

As such, the FETCH project demonstrated significant use of out-of-school time and purposeful family engagement in engineering content and design after school and on weekends. Once a month, participating children and caregivers would meet in local community partner organizations (e.g., Boys & Girls Club, local church, public library) and collaborate with researchers and volunteer engineers from the community. Community organizations were intentionally included as prior research indicates that the inclusion of community partners and services or opportunities beyond traditional school parameters leads to positive outcomes for students, both academically and socially (Stefanski et al., 2016; Valli et al., 2016). These organizations were also familiar and accessible to families, acting as a bridge between systems and integration of services and student support (Bronstein & Mason, 2016; Cohen-Vogel et al., 2010). In between these sessions, children would work on program take-home kits, each emphasizing stages of the engineering design cycle and developing their innovation and creativity skills. The diverse array of take-home kits, as well as the flexible timeframe and encouragement to use recycled materials or items from around the home provided a framework by which children could become comfortable with failure, as well as adapt their thinking, exploration, and inquiry into various topics and experiences. Further, the emphasis on at-home learning and collaboration with family and local community members aimed to provide a sense of relevance for children and enhance their understanding of engineering (Dou et al., 2019; Young et al., 2019).

Collaborative Leadership and Practices

Collaborative leadership and practices are defined by Heck and Hallinger (2010) as "...governance structures and processes that foster shared commitment to achieving school improvement goals, broad participation and collaboration in decision making, and shared accountability for student learning outcomes" (p. 228). Said differently, collaborative leadership and practices entail the incorporation of various voices and perspectives in programmatic or policy decision-making to work together toward a common goal for student and familial success (Stefanski et al., 2016). As previously noted, caregiver perspectives remain one of the central components of the FETCH project. The inclusion of caregiver and family needs and circumstances in the development of program features, delivery, and locations has been entirely brought about through collaboration with families, teachers, school social workers, and community agency leaders. For example, within the 'Grabber' kit, certain tubing materials and straws led to consistent failure and kit avoidance. Based on caregiver feedback regarding provided materials and tools, new and more functional materials including sturdy, hard plastic tubing and stronger adhesives were provided. It was also caregiver feedback that led to the FETCH project purposefully providing multiple group meeting times during the week, on days and at times that worked best for families. In this case, Thursday evenings and Saturday mornings were offered as virtual meeting times for kit show-and-tells, connection with other participating families, and Q&A with researchers or other community guests (e.g., engineers).

Through leveraging and centering previously existing trusted relationships and school or community partners, the FETCH project was also able to support and advance one of the most prominent programmatic features, the

positioning of parents as educators, experts, and project collaborators. The Coalition for Community Schools noted how successful community schools draw on the expertise and knowledge of local partners and community members to ensure that the services and support provided to families and children meet the most pressing needs of the community (Frankl, 2016). Parallel to this concept, the FETCH program recognized parents and caregivers as educators and as the people who best understand their children, their thought processes, and ways of being. While child-caregiver engagement and collaboration remain an essential element of research and interest to the overall project, it concurrently presents a critical element to the functioning and success of other programmatic aims. Creating an accessible and approachable format for understanding engineering and its function within our everyday lives is often dependent upon a caregiver's ability to make connections with shared experiences or preexisting relationships (Cian et al., 2022). One example of this is the relationship between Mia and her twin daughters Aleena and Atalia. Upon reflecting on their time in the program, Mia noted her understanding of the ways Aleena and Atalia thought and behaved and how that shifted her interactions with them while working on kits. She said,

> I think once you meet them for five minutes... probably everyone notices this... they're extremely competitive ...I talk to one it's the end of the world for the other so in a project like this just being able to balance. But it's balancing that and knowing just how to include both of them in the design and making sure they're hearing each other.

In this way, caregivers represent essential collaborators in program implementation and unique partners in the co-creation of at-home learning experiences and engagement for children in STEM and engineering content (Knox et al., 2022).

Active Family and Community Engagement

Of all the defining pillars within the community school model, active family and community engagement is arguably the most aligned with the aims and scope of the FETCH project. This pillar sits at the heart of the program, its related research, and overall outcome goals. In their Community Schools playbook, the Partnership for the Future of Learning (2022) describe active family and community engagement as equitable partnerships that contribute to the building of relationships, fostering of mutual trust and respect, and acknowledging local resources and expertise. Such partnerships contribute to student development and address barriers to learning. The benefits derived from positive and prosocial relationships between families, schools, and their local communities have increased in importance and focus in public education (Li & Fischer, 2017; Ma et al., 2016). This growth in focus and understanding of lifelong benefits is demonstrated by the addition of engagement requirements to the Every Student Succeeds Act (ESSA) and its prioritization by policymakers in the US Department of Education (Mayger et al., 2022).

Noting these benefits, the FETCH project serves as a unique method for blending family, caregiver, and community engagement with STEM-oriented content that complements traditional school day learning. Through partnerships with school districts and interested teachers, our FETCH project team was able to meet and connect with potential participants at STEM nights, through school communication channels, and through open houses. Teachers and school professionals were able to identify not only children and families who they knew might be interested but also those that might benefit the most through the increased academic support and structured out-of-school time. Concurrently, teachers and schools were supported in the provision of focused STEM activity and engineering content which many indicated had not been possible previously, due to time, financial, and resource constraints (Finkel, 2017; Madden et al., 2016).

Through this focused engagement that purposefully centers caregivers as thought partners and co-engineers, family members are provided with an opportunity to better understand their child(ren)'s thought processes or ways of knowing. One parent, Melissa, noted this in her two children Max and Audrey, stating "... she [Audrey] is really creative. And then sometimes for like, emotional things, like, sometimes you feel like frustrated, and then he [Max] just stopped. So now I understand more and that I can, like, work with him to resolve the problem." This type of experience has the potential to reveal achievement and opportunity gaps that may exist in children's traditional schooling or provide avenues for supplementing learning styles or experiences to further traditional content instruction.

Finally, the FETCH project actively incorporated local engineering firms and STEM-oriented organizations from the local communities in which the program took place. What this form of community engagement looked like spanned a wide range. Examples include graduate engineering students discussing and demonstrating current projects underway and local military personnel explaining complex engineering tasks. Local organization representatives also provided hands-on, show-and-tell experiences for students to learn about the engineering processes that take place in businesses and organizations that exist within their very own communities.

Challenges and Future Directions

As with any complex and dynamic research project, both anticipated and unforeseen challenges emerged throughout program implementation. One initial challenge centered around the recruitment of children and families of key demographic groups (e.g., minority families, low-income families, girls) into the program. Despite having strong connections with and support from many local organizations, schools, and educators, bridging the divide and building connections with new schools and families remained difficult. However, this challenge led the research team to consider new methods for connecting with families. One such method was increasing the number of contact points and opportunities to engage with project facilitators, prior to registering and agreeing to participate in research. At one research site, for example, several "engineering challenges" were conducted during informal, family STEM nights or at school open houses. These fun and approachable challenges gave families a chance to see elements of the program in action, as well as begin to develop a rapport with facilitators and researchers. At this same site, researchers opted to create informational example videos to help facilitate individual projects at home. This provided an opportunity to see and get to know the researchers and program facilitators, while also aiding in overall recruitment as an accessible informational platform that students and families might share. Critical to the community school model and its core pillar of family and community engagement, this practice fostered trust between university researchers, schools, and families, contributing to more student and caregiver interest and ultimate enrollment in the project and corresponding research.

Another significant and ongoing challenge that emerged over the course of this program was the COVID-19 pandemic and the unprecedented shifts in research, education, and community engagement that ensued. Particularly in the earlier days of the pandemic, the FETCH project transitioned from in-person meetings to virtual meetings which carried on into the summer of that year (2020). At one research site, this led to the development of a three-week virtual family summer camp which provided invaluable insight into ways to change our approach to program delivery and begin to anticipate familial needs going forward. The public health circumstances of the past several years also altered our recruitment approach, as partnering schools and community organizations were no longer able to hold in-person family STEM nights. The events that were held were often conducted virtually, which impacted our original target family populations due to limited access to the internet, appropriate technology, and hardware.

Over time we found the shift to virtual meetings and use of various online platforms (e.g., Sibme, Zoom, Google Slides, Google Classroom, etc.) to be successful, providing an accessible method to reach a more extensive range of children and families across project regions. Use of familiar tools and capitalizing on the quick adaptation students and families demonstrated to shift to online learning allowed for contact and participation with families we otherwise may not have known. A primary example of this was the research team's use of Google Slides to provide accessible, online video and photo examples of the individual project process as shown in Figure 5. Feedback from various caregivers and educators informed the use of this tool, which also provided an opportunity to add additional resources, links, and information. One parent noted this, stating,

> ...this was a really, really cool experience, and everything was so well thought out, like the kids like to be able to click on a video and watch something as an example was super helpful, 'cause then that always led us to do other research and the facilitation guides were really great for the parents. They were great, they were super well thought out and systematic. Even the last project with the Google Slides where like, you each had your own example, and like a little bit, like that was very helpful. It was very well done and easy to follow and fun, it wasn't... Again, your examples were very doable and manageable, they weren't way up here, he didn't build a rocket or something.

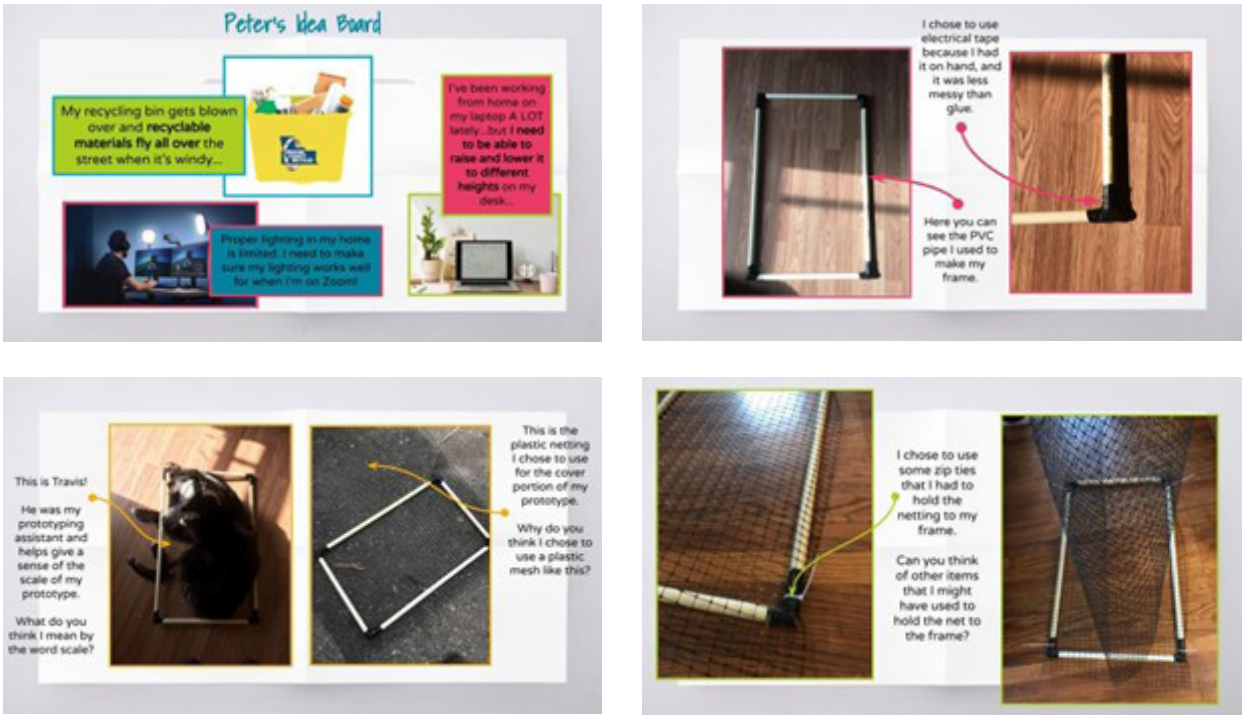


Figure 5: Online caregiver facilitation and examples provided by research team, via Google Slides, for family use during FETCH project phase two, developing an individual engineering project.

Shifts to online tools and resources, along with the tangible, hands-on elements of the kits and individual project stage of the program, also provided great insight into the sustainability of the FETCH project. Such platforms and processes can be easily accessed by families using equipment and open-access software provided by schools or within schools or local community organizations (e.g., public libraries). The most recent iterations of the program utilized centralized pick-up and drop-off locations with partnering schools and teachers, along with Zoom and other online platforms for recording kit use, interacting with families, and providing support and information. In doing this, it became clear that the FETCH project could be adapted and used by individual teachers to supplement STEM lessons, by local libraries or community organizations in providing out-of-school learning experiences, or by individual families interested in learning more about engineering. Further, the shifts in program structure offer insight into methods for greater incorporation of virtual family engagement for future programs and curricula beyond engineering.

Conclusion

Our intention in writing this article was to highlight a collaborative research endeavor that aligned with the values and key pillars of the community school model. Simultaneously, this article serves as a reflection on an iterative process of content delivery and programmatic structure. It is our belief that much of what made the FETCH project successful was the unique and adaptable methods used, which fit hand-in-glove with essential tenets of the community school model. While the FETCH project was not originally designed with these fundamental pillars at the forefront, it was the core principles of integrated student support, expanded and enriched learning time and opportunity, collaborative leadership and practices, and active family and community engagement that ultimately made this program effective. The FETCH project offers insight into ways STEM and engineering content might be implemented to support both students and their families and to further integrate community resources into schools and educational practices.

References

Allen, P. J., Lewis-Warner, K., & Noam, G. G. (2020). Partnerships to Transform STEM Learning: A Case Study of a STEM Learning Ecosystem. *Afterschool Matters, 31*, 30-41. https://eric.ed.gov/?id=EJ1249559

Allen, C. D., & Penuel, W. R. (2015). Studying teachers' sensemaking to investigate teachers' responses to professional development focused on new standards. *Journal of Teacher Education, 66*(2), 136–149. https://doi.org/10.1177/0022487114560646

Avnet, M., Makara, D., Larwin, K. H., & Erickson, M. (2019). The impact of parental involvement and education on academic achievement in elementary school. *International Journal of Evaluation and Research in Education, 8*(3), 476-483. https://eric.ed.gov/?id=EJ1232316

Benner, A. D., Boyle, A. E., & Sadler, S. (2016). Parental involvement and adolescents' educational success: The roles of prior achievement and socioeconomic status. *Journal of Youth and Adolescence, 45*(6), 1053-1064.

Bronstein, L. R., & Mason, S. E. (2016). *School-Linked Services: Promoting Equity for Children, Families, and Communities.* Columbia University Press.

Bronstein, L. R., Mellin, E., Lee, Y., & Anderson, E. (2019). School-linked services and community schools. *Children & Schools, 41*(2), 67-68. https://doi.org/10.1093/cs/cdz004

Burrows, A., Lockwood, M., Borowczak, M., Janak, E., & Barber, B. (2018). Integrated STEM: Focus on informal education and community collaboration through engineering. *Education Sciences, 8*(1), 1-15.

Capobianco, B. M., Diefes-dux, H. A., Mena, I., & Weller, J. (2011). What is an engineer? Implications of elementary school student conceptions for engineering education. *Journal of Engineering Education, 100*(2), 304-328. https://doi.org/10.1002/j.2168-9830.2011.tb00015.x

Cheadle, J. E., & Amato, P. R. (2011). A quantitative assessment of Lareau's qualitative conclusions about class, race, and parenting. *Journal of family Issues, 32*(5), 679-706. https://doi.org/10.1177/0192513X10386305

Cian, H., Dou, R., Castro, S., Palma-D'souza, E., & Martinez, A. (2022). Facilitating marginalized youths' identification with STEM through everyday science talk: The critical role of parental caregivers. *Science Education,* 106(1), 57-87. https://doi.org/10.1002/sce.21688

Committee on STEM Education, National Science and Technology Council. (2013). *Federal science, technology, engineering, and mathematics (STEM) education 5-year strategic plan: A report from the Committee on STEM Education National Science and Technology Council.* Executive Office of the President National Science and Technology Council.

Cohen-Vogel, L., Goldring, E., & Smrekar, C. (2010). The influence of local conditions on social service partnerships, parent involvement, and community engagement in neighborhood schools. *American Journal of Education, 117*(1), 51-78. https://doi.org/10.1086/656346

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.

DiFrancesca, D., Lee, C., & McIntyre, E. (2014). Where Is the" E" in STEM for Young Children? Engineering Design Education in an Elementary Teacher Preparation Program. *Issues in Teacher Education, 23*(1), 49-64. https://eric.ed.gov/?id=EJ1045689

Dou, R., Hazari, Z., Dabney, K., Sonnert, G., & Sadler, P. (2019). Early informal STEM experiences and STEM identity: The importance of talking science. *Science Education, 103*(3), 623-637. https://doi.org/10.1002/sce.21499

Douglas, K. A., Rynearson, A., Yoon, S. Y., & Diefes-Dux, H. (2016). Two elementary schools' developing potential for sustainability of engineering education. *International Journal of Technology and Design Education, 26*(3), 309–334. https://doi.org/10.1007/s10798-015-9313-4

Eisenhart, M., Weis, L., Allen, C. D., Cipollone, K., Stich, A., & Dominguez, R. (2015). High school opportunities for STEM: Comparing inclusive STEM-focused and comprehensive high schools in two US cities. *Journal of Research in Science Teaching, 52*(6), 763-789. https://doi.org/10.1002/tea.21213

English, L. D. (2017). Advancing elementary and middle school STEM education. International *Journal of Science and Mathematics Education, 15*(1), 5-24. https://doi.org/10.1007/s10763-017-9802-x

Englund, M. M., Luckner, A. E., Whaley, G. J. L., & Egeland, B. (2004). Children's achievement in early elementary school: Longitudinal effects of parental involvement, expectations, and quality of assistance. *Journal of Educational Psychology, 96*(4), 723–730. https://doi.org/10.1037/0022-0663.96.4.723

Epstein, J. L. (1987). Parent involvement: What research says to administrators. *Education and Urban Society, 19*(2), 119–136. https://doi.org/10.1177/0013124587019002002

Epstein, J. L., & Sheldon, S. B. (2002). Present and accounted for: Improving student attendance through family and community involvement. *The Journal of Educational Research, 95*(5), 308-318. https://doi.org/10.1080/00220670209596604

Finkel, L. (2017). Walking the path together from high school to STEM majors and careers: Utilizing community engagement and a focus on teaching to increase opportunities for URM students. *Journal of Science Education and Technology,* 26(1), 116-126. https://doi.org/10.1007/s10956-016-9656-y

Fischer, S., Barnes, R. K., & Kilpatrick, S. (2019). Equipping parents to support their children's higher education aspirations: A design and evaluation tool. *Educational review,* 71(2), 198-217. https://doi.org/10.1080/00131911.2017.1379472

Frankl, E. (2016). Community Schools: Transforming Struggling Schools into Thriving Schools. *Southern Education Foundation.* https://eric.ed.gov/?id=ED585872

Gilbert, D., Silverberg, L., LaConte, K., Holland, A., Caspe, M., & Hanebutt, R. (2020). Community STEM collaborations that support children and families. *Afterschool Alliance.* https://eric.ed.gov/?id=ED602091

Griffiths, A. J., Alsip, J., Kennedy, K., Diamond, E. L., Palma, C., Abdou, A. S., ... & Brady, J. (2021). Families and Schools Together: Designing a Model for University-Community Partnerships to Support Home-School Collaborations. *Contemporary School Psychology,* 1-13. https://doi.org/10.1007/s40688-021-00358-5

Goldkind, L., & Farmer, G. L. (2013). The Enduring Influence of School Size and School Climate on Parents' Engagement in the School Community. *School Community Journal,* 23(1), 223-244. https://eric.ed.gov/?id=EJ1004340

Hammack, R., & Ivey, T. (2019). Elementary teachers' perceptions of K-5 engineering education and perceived barriers to implementation. *Journal of Engineering Education*, 108(4), 503-522. https://doi.org/10.1002/jee.20289

Heck, R. H., & Hallinger, P. (2010). Collaborative leadership effects on school improvement: Integrating unidirectional- and reciprocal-effects models. *The Elementary School Journal*, 11(2), 226–52.

Henry, C. S., Plunkett, S. W., & Sands, T. (2011). Family structure, parental involvement, and academic motivation in Latino adolescents. *Journal of Divorce & Remarriage,* 52(6), 370-390. https://doi.org/10.1080/10502556.2011.592414

Houser, J. H. (2016). Community-and school-sponsored program participation and academic achievement in a full-service community school. *Education and Urban Society*, 48(4), 324-345. https://doi.org/10.1177/0013124514533792

Hurst, M. A., Polinsky, N., Haden, C. A., Levine, S. C., & Uttal, D. H. (2019). Leveraging research on informal learning to inform policy on promoting early STEM. *Social Policy Report,* 32(3), 1-33.

Institute for Educational Leadership. (2021). *Community schools: Supporting one another as a blueprint for the future.* Retrieved from https://www.communityschools.org/wp-content/uploads/sites/2/2021/08/CS-Brief-for-AECF-Joses-version-16.pdf.

Jeynes, W. H. (2005). A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement. *Urban Education, 40*(3), 237–269. https://doi.org/10.1177/0042085905274540

Kelley, T. R., & Knowles, J. G. (2016). A conceptual framework for integrated STEM education. *International Journal of STEM education, 3*(1), 1-11. https://doi.org/10.1186/s40594-016-0046-z

Kim, Y. (2009). Minority parental involvement and school barriers: Moving the focus away from deficiencies of parents. *Educational Research Review, 4*(2), 80-102. https://doi.org/10.1016/j.edurev.2009.02.003

Knox, P., Simpson, A., Yang, J., & Maltese, A. (2022). Exploring Caregiver Influence on Child Creativity and Innovation in an Out-of-School Engineering Program. *Thinking Skills and Creativity,* 101064, 1-13.

Li, A., & Fischer, M. J. (2017). Advantaged/disadvantaged school neighborhoods, parental networks, and parental involvement at elementary school. *Sociology of Education,* 90(4), 355–377. https://doi.org/10.1177/0038040717732332

Liu, F., Ritzhaupt, A. D., Dawson, K., & Barron, A. E. (2017). Explaining technology integration in K-12 classrooms: A multilevel path analysis model. *Educational Technology Research and Development,* 65(4), 795-813. https://doi.org/10.1007/s11423-016-9487-9

Ma, X., Shen, J., Krenn, H. Y., Hu, S., & Yuan, J. (2016). A meta-analysis of the relationship between learning outcomes and parental involvement during early childhood education and early elementary education. *Educational Psychology Review,* 28(4), 771-801. https://doi.org/10.1007/s10648-015-9351-1

Madden, L., Beyers, J., & O'Brien, S. (2016). The importance of STEM education in the elementary grades: Learning from pre-service and novice teachers' perspectives. *The Electronic Journal for Research in Science & Mathematics Education,* 20(5), 1-18.

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

Maier, A., Daniel, J., & Oakes, J. (2017). *Community schools as an effective school improvement strategy: A review of the evidence.* Learning Policy Institute. Retrieved from https://learningpolicyinstitute.org/product/community-schools-effective-school-improvement-report.

Mayger, L., & Provinzano, K. (2022). Leadership for family and community engagement: A qualitative policy analysis of state principal evaluation processes. *Educational Administration Quarterly,* 58(1), 141-177. https://doi.org/10.1177%2F0013161X211052501

Mohr-Schroeder, M., Bush, S. B., Maiorca, C., & Nickels, M. (2020). Moving toward an equity- based approach for STEM literacy. In C. Johnson, M. J. Mohr Schroeder, T. Moore, & L. English (Eds.), *Handbook of Research on STEM Education,* (pp. 29–38). Routledge.

Moore, T. J., Tank, K. M., Glancy, A. W., & Kersten, J. A. (2015). NGSS and the landscape of engineering in K-12 state science standards. *Journal of Research in Science Teaching,* 52(3), 296-318.

National Research Council (2011). *Successful K-12 STEM education: identifying effective approaches in science, technology, engineering, and mathematics.* The National Academies Press.

Núñez, J. C., Suárez, N., Rosário, P., Vallejo, G., Valle, A., & Epstein, J. L. (2015). Relationships between perceived parental involvement in homework, student homework behaviors, and academic achievement: differences among elementary, junior high, and high school students. *Metacognition and Learning,* 10(3), 375-406.

Oakes, J., Maier, A., & Daniel, J. (2017). Community Schools: An Evidence-Based Strategy for Equitable School Improvement. *National Education Policy Center.* https://eric.ed.gov/?id=ED574713

Park, S., & Holloway, S. D. (2017). The effects of school-based parental involvement on academic achievement at the child and elementary school level: A longitudinal study. *The Journal of Educational Research,* 110(1), 1-16. https://doi.org/10.1080/00220671.2015.1016600

Penuel, W. R., Clark, T. L., & Bevan, B. (2016). Infrastructures to Support Equitable STEM Learning across Settings. *Afterschool Matters, 24,* 12-20. https://eric.ed.gov/?id=EJ1120471

Povey, J., Campbell, A. K., Willis, L. D., Haynes, M., Western, M., Bennett, S., ... & Pedde, C. (2016). Engaging parents in schools and building parent-school partnerships: The role of school and parent organisation leadership. *International Journal of Educational Research,* 79, 128-141. https://doi.org/10.1016/j.ijer.2016.07.005

Saw, G. (2019). The impact of inclusive STEM high schools on student outcomes: A statewide longitudinal evaluation of Texas STEM academies. *International Journal of Science and Mathematics Education,* 17(8), 1445-1457. https://doi.org/10.1007/s10763-018-09942-3

Scogin, S. C., Kruger, C. J., Jekkals, R. E., & Steinfeldt, C. (2017). Learning by experience in a standardized testing culture: Investigation of a middle school experiential learning program. *Journal of Experiential Education,* 40(1), 39-57. https://doi.org/10.1177%2F1053825916685737

Sibme. (2022). Sibme. Available at https://sibme.com/

Simpson, A., & Bouhafa, Y. (2020). Youths' and adults' identity in STEM: A systematic literature review. *Journal for STEM Education Research,* 3(2), 167-194. https://doi.org/10.1007/s41979-020-00034-y

Simpson, A., Yang, J., Knox, P. N., & Maltese, A. V. (2021). Caregivers' multiple roles in supporting their child through an engineering design project (Fundamental). In *2021 ASEE Virtual Annual Conference Content Access.* https://peer.asee.org/36786

Sliwa, S. A., Calvert, H. G., Williams, H. P., & Turner, L. (2019). Prevalence and types of school-based out-of-school time programs at elementary schools and implications for student nutrition and physical activity. *Journal of School Health,* 89(1), 48-58. https://doi.org/10.1111/josh.12710

Stebbins, M. & Goris, T. (2019). Evaluating *STEM Education in the U.S. Secondary Schools: Pros and Cons of the «Project Lead the Way»* Platform. International Association of Online Engineering. Retrieved from https://www.learntechlib.org/p/207575/.

Stefanski, A., Valli, L., & Jacobson, R. (2016). Beyond Involvement and Engagement: The Role of the Family in School-Community Partnerships. *School Community Journal,* 26(2), 135-160. https://eric.ed.gov/?id=EJ1124001

Stohlmann, M., Moore, T. J., & Roehrig, G. H. (2012). Considerations for teaching integrated STEM education. *Journal of Pre-College Engineering Education Research* (J-PEER), 2(1), 1-7. https://doi.org/10.5703/1288284314653

Sui-Chu, E. H., & Willms, J. D. (1996). Effects of parental involvement on eighth-grade achievement. *Sociology of Education,* 69(2), 126–141. https://doi.org/10.2307/2112802

Thibaut, L., Knipprath, H., Dehaene, W., & Depaepe, F. (2018). The influence of teachers' attitudes and school context on instructional practices in integrated STEM education. *Teaching and Teacher Education,* 71, 190-205. https://doi.org/10.1016/j.tate.2017.12.014

Thiry, H., Archie, T., Arreola-Pena, M., & Laursen, S. (2017). Linkages between youth diversity and organizational and program characteristics of out-of-school-time science programs: a mixed-methods study. *International Journal of Science Education*, Part B, 7(2), 121-145. https://doi.org/10.1080/21548455.2015.1105397

Tytler, R., Symington, D., Williams, G., & White, P. (2018). Enlivening stem education through school-community partnerships. In J. Jorgensen and K. Larkin (Eds.) *STEM education in the Junior Secondary* (pp. 249-272). Springer.

Usher, A., & Kober, N. (2012). What roles do parent involvement, family background, and culture play in student motivation? *Center on Education Policy.* https://eric.ed.gov/?id=ED532667

Utley, J., Ivey, T., Hammack, R., & High, K. (2019). Enhancing engineering education in the elementary school. *School Science and Mathematics,* 119(4), 203-212. https://doi.org/10.1111/ssm.12332

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

Van Voorhis, F. L., Maier, M. F., Epstein, J. L., & Lloyd, C. M. (2013). The impact of family involvement on the education of children ages 3 to 8: A focus on literacy and math achievement outcomes and social-emotional skills. *MDRC.* https://eric.ed.gov/?id=ED545474

Wieselmann, J. R., Roehrig, G. H., & Kim, J. N. (2020). Who succeeds in STEM? Elementary girls' attitudes and beliefs about self and STEM. *School Science and Mathematics,* 120(5), 297-308.

Young, J. R., Ortiz, N., & Young, J. L. (2017). STEMulating interest: A meta-analysis of the effects of out-of-school time on student STEM interest. *International Journal of Education in Mathematics, Science and Technology,* 5(1), 62-74. DOI:10.18404/ijemst.61149

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

Engaging Students in Participatory Action Research with University-Assisted Community Schools: A Mutually Transformative Experience

Janine Al-Aseer, Ph.D. – *University of Tennessee, Knoxville*
Laura Beal, Ph.D. – *University of Tennessee, Knoxville*

Dr. Janine Al-Aseer is a Clinical Assistant Professor at the University of Tennessee, Knoxville and oversees the University-Assisted Community Schools initiative there. She comes from a background of community empowerment and derives great joy working with the UACS research team each semester.

Dr. Laura Beal recently graduated from the University of Tennessee with a doctorate in Education. She teaches and facilitates the Education and Training pathway at a Tennessee high school where she shares her love of teaching with future educators.

Abstract

Land-grant institutions provide accessible research-based programs and resources toward the improvement of the communities within their state. As a land-grant institution, the University-Assisted Community Schools (UACS) initiative is one way that the University of Tennessee contributes to the surrounding community. A vital component of this enterprise is the cadre of university students who volunteer their time in service to the initiative. Traditionally, university students undertake this endeavor for service hours, course credit, or the simple joy of volunteering. The goal of our team was to develop valuable research skills and experiences for university students. To ensure that our students received the maximum benefit of their Community School experiences, team members employed Participatory Action Research to bring in university students not only as service learners but also as fellow researchers. In this article we will outline the process for the creation of this multigenerational, interdisciplinary team, as well as share our lessons learned and suggestions for the future. Our intended purpose is to help other institutions provide a mutually transformative experience of this type for university students in their respective networks.

University-Assisted Community Schools (UACS) operate with a wealth of assets from their anchor institution, enabling a rich array of resources for kindergarten through 12th grade (K-12) students and their caregivers. Land-grant institutions provide accessible research-based programs and resources toward the improvement of the communities within their state. Often called a strategy or initiative, UACS harness the power of university connections and local partnerships, thus contributing to the land-grant mission.

Traditionally, UACS initiatives provide opportunities for university students to mentor, tutor, read, play, and model important life skills for K-12 students. Their presence can be far-reaching by bringing academic concepts to life, teaching interpersonal skills, and making post-secondary education more accessible and attainable for students from first-generation backgrounds. The University of Tennessee UACS initiative encourages college students within their network to volunteer at one of their Community School sites based on their time, talent, and topics of interest. For more than a decade, university students have engaged at Community School sites, eager for opportunities to give back to their community while growing their skill set and breadth of experience. In past iterations, UACS has accepted this assistance in exchange for service and/or volunteer hours, but in this project, our team leaders attempted a paradigm shift in thinking about university student engagement. We asked ourselves: What new and different ways can we engage university students at our Community School sites?

We took on this challenge in the 2022 Spring semester with the formation of an interdisciplinary team committed to growing the program evaluation process for the University of Tennessee UACS initiative at two sites. Site One refers to an urban K-5 Title 1 school with a long-standing initiative, while Site Two refers to a rural K-12 Title 1 school that is in its first few years of development. Using the work of seven researchers, we intend to outline our process, provide lessons learned, and share opportunities for others to facilitate a *mutually transformative experience* at their institutions. In outlining our research process, we will discuss the importance of providing diverse research opportunities at the undergraduate and graduate level, give a brief overview of the context of the project and its methodology—Participatory Action Research—how our team came to be, and the process and outcomes of the research project. We conclude with how to promote scholarly resume-building for undergraduate and graduate students, future investigatory possibilities and how the research can be extended.

Background

In *Pedagogy of the Oppressed*, Freire (1970) presents education as a tool of conformity or freedom. The complexities of oppression make the distinction between conformity and freedom significantly more complicated. To distinguish UACS' place on the continuum, it is important to investigate and reexamine roles of privilege. How are UACS initiatives bringing in silenced voices who do not hold the same social or cultural capital? Through promoting dialogue about roles of privilege for higher education institutions, UACS staff, and university students, UACS sites have a better opportunity to serve as places of access and liberation.

Exposure to opportunities that build research skills is vital for university students to grow personally and professionally. Studies show that undergraduate research experience builds interdisciplinary connections for students, while also increasing learning, retention, and enrollment in graduate school (Carpi et al., 2017; Hensley & Davis-Kahl, 2017). Despite these important benefits, undergraduate students are not often involved in research. It can be difficult to align research with the undergraduate experience. As best described by Jenkins (2021), research-practice partnerships are one way to bring research to life for students.

Oftentimes, research opportunities are allocated to students and faculty with privilege (Carpi et al., 2017). More precisely, knowing where to identify research experiences, how to get involved, and the importance of that involvement as a mean to attain a potential future higher education career track are all fueled by cultural, financial, and social capital. As "researchers are increasingly asked to work collaboratively with diverse stakeholders, attend to epistemological diversity, and communicate effectively with a variety of stakeholders and audiences," we need to create "a pedagogy for [students] in the field of education that will effectively prepare them" (Jenkins, 2021). These pedagogical opportunities are especially important for non-traditional college students and under-represented minorities who are often left out of research experiences that can have a transformative effect on career ambitions (Carpi et al., 2017). These research experiences can also increase students' competitiveness in the higher education market. This project afforded members of the research team the opportunity to experience transformative research that otherwise may not have been available to them.

Context

This project was designed to examine the effectiveness of two UACS in East Tennessee, one well-established (Site One) and one in development (Site Two). Researchers sought to understand how the Community School strategy is being implemented at Site One and how it should be implemented at Site Two. Additionally, both sites sought to evaluate how to better implement the strategy to include local community voices.

The research team consisted of three undergraduate researchers, two graduate research assistants, and the director of University-Assisted Community School initiative at the University of Tennessee, Knoxville, as well as an independent consultant who provided an outside perspective and expertise on program evaluation. The graduate research assistants expressed interest in conducting Community School research and were recruited via their graduate assistantships and recommendations from faculty. Two of the undergraduates were recruited from an honors program at the college which receives recommendations from faculty for service research partnerships. The other undergraduate student received sponsorship by a college initiative aimed at increasing student research experience among underrepresented minorities. For this project, the sponsoring faculty, Dr. Janine Al-Aseer, is also the lead researcher and Director of UACS for the University of Tennessee, Knoxville; however, this is not necessary for the reproduction of the project. Dr. Al-Aseer actively discussed this project with graduate students and sought out opportunities for engaged research sponsorship from various agencies, such as non-profit organizations, local school systems, and university programs. Once identified, these agencies worked with Dr. Al-Aseer to interview each student and ascertain whether the partnership would be beneficial for the research as well as match the students' goals.

The five student researchers had little experience with the Community School initiative and Participatory Action Research. Table 1 indicates each researcher's experience with qualitative research. The undergraduate researchers' names have been removed for anonymity.

This article will detail how seven individuals transformed into a unique research team using Stringer and Genat's (2004) Five Phases of Participatory Action Research. We will outline the steps the team took to evaluate the programs and suggest next steps for improvement.

Researcher Role	Experience
Dr. Janine Al-Aseer	Clinical Assistant Professor, 20 years in education with 10 years working within the Community School model, lead professor for university service-learning courses **Role:** Sponsoring Faculty, Lead Researcher, and Director of UACS for the University of Tennessee
Dr. Laura Beal	Qualitative researcher, content analysis, little experience working with interviews and focus groups; experience with Community School initiatives limited to course interactions with service-learning students **Role:** Lead Graduate Student; responsible for synthesizing information and delivering findings
Jordan Frye Shields	Researcher and LMSW; significant understanding of the Community School initiative **Role:** Consultant; responsible for creating frameworks for focus groups, implementing focus groups, training students, synthesizing information, creating data reports
Ms. Jessica Summers	Qualitative researcher; significant understanding of the Community School initiative **Role:** Embedded Graduate Student; responsible for working within the Community School and conducting on-sight research with enrolled students
Undergraduate Researcher	No experience with research or the Community School initiative **Role:** Embedded Undergraduate Student; responsible for working within the Community School and conducting on-sight research with enrolled students
Undergraduate Researcher	Qualitative researcher, little to no experience with qualitative research and the Community School initiative **Role:** Embedded Undergraduate Student; responsible for working within the Community School and conducting on-sight research with enrolled students
Undergraduate Researcher	Quantitative researcher, no experience with qualitative research, limited volunteer experience with the Community School initiative **Role:** Embedded Undergraduate Student; responsible for working within the Community School and conducting on-sight research with enrolled students

Table 1: Research Team Members, Their Roles, and Experience with Qualitative Research

Participatory Action Research

As the name suggests, Participatory Action Research (PAR) relies heavily on three pillars: participation, action, and research. Chevalier and Buckles (2019) state that Participatory Action Research "works at reconciling and integrating research (R) and the advancement of knowledge with people's active (A) engagement with social history and the ethics of participation (P) and democracy" (p. 21). In Figure 1, using a three circle Venn diagram, Chevalier and Buckles indicate how the three actions work together to create PAR:

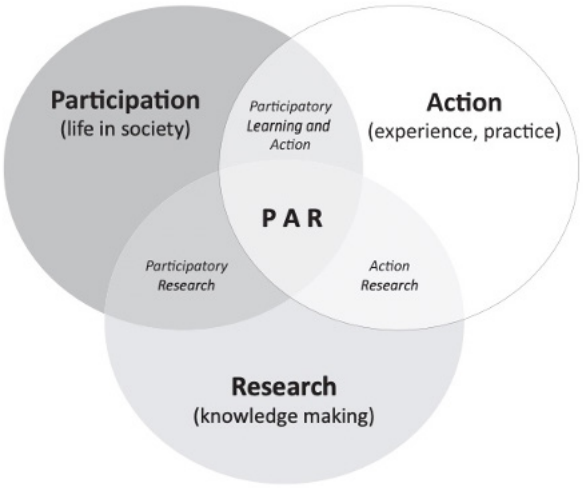


Figure 1: Participatory Action Research (Chevalier & Buckles, 2019)

For the purposes of our research project, we defined Participatory Action Research as follows: participation included our three undergraduate researchers and one of our graduate researchers immersed in the Community School program; action included interacting with the students enrolled in and the staff of the Community School; and research included participating as notetakers in focus group interviews and conducting one-on-one interviews with K-12 students to gauge their satisfaction with the programs. Through PAR, we wanted to ensure long-term, authentic implementation of a Community School strategy at two schools led by and for the community they serve.

Action research has appeared in research projects in a variety of disciplines because it is such a versatile method (Kemmis & McTaggart, 2000). Participatory Action Research is a human justice-focused process for designing educational interventions due to its data-driven focus imbued with democratic and reflective processes (James, Milenkiewicz, & Bucknam, 2007). Action Research with a participatory aim aligned closely with our objectives in this project—to identify a challenge collaboratively with the Community School stakeholders, to gather data toward that need, and to walk students through the coding process in order to create a report that would further the Community School stakeholder understanding of the issue. Stringer and Genat (2004) emphasize that participatory action research allows the researchers to focus on understanding a situation and offering. Our project was initiated as a cyclical process, one that focuses on looking at the situation, thinking about how best to address the situation, and acting to determine what actions should be taken to resolve the situation while making clear that our report would not necessarily "solve" the challenges identified. Stringer and Genat offer a five-phase approach for conducting Participatory Action Research: research design, data gathering, data analysis, communication, and action (See Table 2). The five-phase procedure was attractive to this research group as it streamlined the participatory action research process in a digestible format, particularly for our new research members. It is important to note that while the five-phase approach is presented linearly in the table below, it can be conducted cyclically.

Phase	Description	Components
Phase One: Research Design	The beginning of the study or project	Identifying research questions and frames, identifying and contacting participants, and verifying ethics and methods.
Phase Two: Data Gathering	Collecting stakeholder and participant data	Qualitative and quantitative methods; interview and focus groups
Phase Three: Data Analysis	Reducing large amounts of qualitative data into digestible pieces	Coding and identifying themes
Phase Four: Communication	Creating reports for stakeholders to review	Generating reports and presentations
Phase Five: Action	Using the learned knowledge to improve or resolve the identified research purpose	Identifying areas of improvement and making recommendations for improvement

Table 2: From *Five-Phase Approach to Participatory Action Research* (Stringer & Genat, 2004)

As the research team moved through the process, we leaned into the five phases at different times. At the completion of the focus group interviews, for example, the data was analyzed while the collection phase for the one-on-one interviews with the students at Site One proceeded. With this in mind, we understood that while Research Design is a finite phase, the four remaining phases were more flexible. The following sections detail how the five phases were implemented during this project.

Phase One: Research Design

Before designing the research project, it was important to introduce the team to key aspects of the research process as many of the members had little experience with qualitative research. Dr. Al-Aseer began with providing foundational elements of the Community School model. In anticipation of the first team meeting, she shared a Google Drive folder containing landmark information about Community School initiatives and University-Assisted Community School strategies. This included site-specific background information, news articles, websites about national Community School organizations (National Coalition for Community Schools, Learning Policy Institute, Institute for Educational Leadership), the Four Pillars of Community Schools (Coalition for Community Schools, 2020), and a national handbook of best practices (Partnership, n. d.). The initial staff meeting focused on building relationships between the team members. Following research meetings utilized a flipped classroom strategy in which the researchers were asked to read articles pertaining to the topics being discussed during staff meetings. Dr. Al-Aseer led research meetings and asked the graduate research assistants to create mini-lessons on the Community School initiative, aspects of qualitative research, focus groups (Krueger, 2015), positionality (Holmes, 2020; Jacobson & Mustafa, 2019), bracketing (Tufford & Newman, 2010), and notetaking. With these concepts established, the team moved to developing the project's implementation.

Crafting Research Purpose and Questions

This project's overall aim was to determine how the Community School initiative was impacting three major stakeholder groups—the parents/caregivers, the faculty/staff, and the students. This goal sparked the following questions:

1. How is the Community School strategy implemented at each campus?
2. How can the strategy be improved to better include local community voices?
3. What are the needs and assets of each school and community?

The team worked with a consultant outside the university to craft questions for each stakeholder group. Working together, the group recommended changes to construct the questions more open-endedly to facilitate dialogue within focus groups. For the student questions, Dr. Al-Aseer and a select group of students brainstormed student-friendly questions aimed to answer the research questions. After further crafting the questions with regard to child development and understanding in mind, the team split the question sets into two categories by grade level: K-2 and 3-5. This decision was made based on the scheduling at the school sites where the researchers would be meeting with their groups. (See list of questions in Appendix A.)

Designing the Project

To obtain the information needed to answer the research questions, we chose to engage in focus group interviews. The research team sought a methodology that would encourage dialogue and selected focus group data collection to achieve this aim. Using focus groups allowed the researchers to identify a topic in which participants could engage in experiential discussion (Rabiee, 2004). Additionally, focus groups allowed the participants to interact with other members of their group, discuss any shared experiences, and build on one another's responses. Because we wanted all stakeholders' voices present, the focus group participants were broken into three categories: Parents/Caregivers, Faculty/Staff, and Students. Site One had participants in all three categories, while Site Two only had Parent/Caregiver and Faculty/Staff groups as programming with students had yet to begin. To accommodate for (a) COVID-19 protocols in place when the project began, and (b) to remove barriers regarding transportation and child-

care, all focus group interviews were conducted via Zoom. Initially, there was one scheduled focus group per category per site, but due to high parent/caregiver interest at Site Two, an additional time was scheduled. With focus groups scheduled, the research team moved into Phase Two: Data Gathering.

Phase Two: Data Gathering

Our data gathering framework was borrowed from educational philosophers Freire and Horton. Horton (1990) and Freire (1970) first highlighted the concepts of democratic schooling and working "with" instead of "to." From this, we created our data-gathering framework's motto: "do with the community, not to the community." To this end, we sought to embed researchers among the student population to develop relationships and normalize their presence. The hope was to work "with" the population, ensuring more authentic responses and reducing possible feelings of being subjects of a study. As the group prepared for data collection, Dr. Al-Aseer divided the labor among the five group members. All three undergraduate researchers and one graduate researcher, Ms. Jessica Summers, were assigned to attend and engage in after-school programming at Site One. For three months, the researchers spent two hours per week working with clubs and organizations within the Community School programming. Twenty staff members, twenty-three parents, and just over sixty children participated in the data collection process. Hearing the breadth of voice allowed the group to more fully understand the people and activities conducted in these groups.

In addition to the focus groups, the study used semi-structured interviews to answer the research questions. Semi-structured interviews allowed us to create questions based on our research questions and gave "the investigator the autonomy to explore pertinent ideas that may [have] come up in the course of the interview" (Adeoye-Olatunde & Olenik, 2021). Together, these methods provided solid opportunities for data. To enlist adult participants at Site One, flyers were distributed to parent/caregivers during pick-up from the school's "Shift 2" program. (Shift 2 is the school's colloquial term for programs occurring after-school.) These provided more information on the registration process for the focus groups through a Google form. Additionally, the Community School site coordinator[1] connected with families. Student participants at Site One were identified through after-school programming by undergraduate and graduate research assistants. After three months of embedding themselves at Site One, the undergraduate and graduate research assistants asked students with parental consent (obtained at the start of the school year from parents/guardians) about the program. To enlist adult participants at Site Two, parent/caregiver participants were identified by the Community School site coordinator via a random sampling of those who expressed interest in providing feedback from a survey (n=23) distributed to the entire student body two months prior. Faculty/staff participants were identified and selected to participate by the Community School site coordinators via the same method.

Focus groups (n=20) were conducted via Zoom, and stakeholders had the option of connecting from their home computer or mobile device. For those without access or devices, a computer was provided at the school in a private room. Each session ranged between 45 and 60 minutes. The outside consultant hosted the focus groups for each stakeholder group at each site and introduced the Zoom technology and ran through audio and visual checks for all participants before beginning. All five undergraduate and graduate researchers attended at least one virtual focus group live as notetakers and watched the other focus groups asynchronously. This provided an opportunity for them to be both "insiders" and "outsiders" and reduce impact on the data collected. The outside consultant facilitated the discussions in all sessions. Notes from all parties were transcribed and saved in a Google Drive folder for future reference by all members of the team.

[1] A Community School Site Coordinator is "responsible for: joint planning with principal and school leadership; recruitment, facilitation, and convening with partners; collaboration with school staff; facilitate regular partner meetings; data use to determine services and program needs and gaps to recruit partners to fill gaps" (Institute for Educational Leadership, 2017, p. 9)

Student interviews (n=62) were conducted in person at the Community School site by a graduate or undergraduate university student member of the team. Every student was included if they expressed interest. After explaining that the questions were intended to help make "Shift 2" better and to hear their ideas, the undergraduate or graduate student would ask for consent and then run through the list of questions. Each student interview took around five minutes.

Phase Three: Data Analysis

As most of the undergraduate and graduate researchers had not performed data analysis, the team relied on the expertise of Dr. Al-Aseer to better understand this process. Ms. Summers provided a visual manual for conducting thematic analysis. In her presentation, she focused on images that best represented the process, such as reading, coding, and identifying themes. Her visual guide made for an appropriate lead into thematic analysis. For the purposes of this study, we used Braun and Clark's (2017) definition of thematic analysis — "a method for identifying, analyzing, and interpreting patterns of meaning ('themes') within qualitative data" (Braun & Clark, 2006, p. 297). We chose to utilize thematic analysis because it provided flexibility. Thematic analysis emphasizes the "'experiential' research which seeks to understand what participants think, feel, and do" (Braun & Clark, 2006; p. 297). The researchers were able to read the focus group and Zoom transcripts with purposeful identification of themes from that data set and review their own field notes to identify themes from the student one-on-one interviews. This provided numerous wells from which the team drew a range of themes.

Following the presentation, the consultant facilitated discussion regarding thematic analysis. In instructions sent via Google Drive, they first defined "code" and "theme," then proceeded to divide the thematic analyses amongst the five researchers. Their intention was to balance the workload and allow the groups to focus their attention on one site. Each group had their own methods for conducting thematic analyses. For example, the Site One team read through their focus group notes, watched the focus groups they did not attend, and wrote their own notes and self-determined themes. Once they completed this process, they met via Zoom and discussed their findings and compiled five themes with explanations to share with the consultant. The other team followed a similar process, with the exception that instead of providing a compiled list of themes, each researcher sent the consultant their themes to synthesize. The questions guiding the thematic analysis were:

Concept	Questions
Agreement	What did participants agree upon?
Frequency	What was mentioned often by more than one participant and/or across groups?
Specificity	Focus on responses that give specific examples and connote first-hand experience over vague responses
Quotes	Were there any quotes that were really impactful to you?
Language	What words or phrases came up? Do you think they mean the same thing when used by different participants? What was the context of responses? What triggered strong responses?

Table 3: Concepts and Questions Guiding Thematic Analysis

The outside consultant then used the findings from Site One and Site Two's thematic analyses to create recommendations for improvement.

Phase Four: Communication

Synthesizing information within the context of Shift 2 programming was difficult to manage for students who spent a significant amount of time at the Community School site due to time constraints. As such, Dr. Laura Beal, who was not embedded onsite, was responsible for synthesizing the information collected during the research process into an accessible final report. In the Executive Summary, Dr. Beal detailed the Statement of Purpose, Study Methodology, Research Questions, Data Analysis, Overall Research Findings, Recommendations for the Future, Next Steps, and Future Projects for the overarching project. Once the full Executive Summary was completed, Dr. Beal divided the report into two separate papers, one for each site. Written reports and associated slide decks were shared electronically with the site supervisors at each campus and presented to the campus administration for further review.

Additionally, an internal presentation was created specifically for the research group to be presented at the final research meeting. This presentation used information from the Executive Summary to summarize the semester's work and focus on the growth of the researchers. As mentioned earlier, the research team was made up of different experience levels and interests; therefore, Dr. Al-Aseer requested that the presentation highlight skills learned and practiced during the process. Dr. Beal found that throughout the process, the researchers learned and flexed their note-taking skills through their work with the focus groups, learned how to work with children, as they were embedded at their sites, and learned how to conduct basic coding and thematic analysis. However, the two most significant skills practiced were their ability to communicate and work as a team. Seeing as they were not personally or professionally connected outside of the research process, it was important to emphasize communication and teamwork.

The last element of the internal team presentation was informing the researchers how they could include this project on their resumes or curriculum vitae. The research lead wanted the undergraduate and graduate researchers to understand how they could showcase this project as an asset for future endeavors. Dr. Beal used her own curriculum vitae entry as an example:

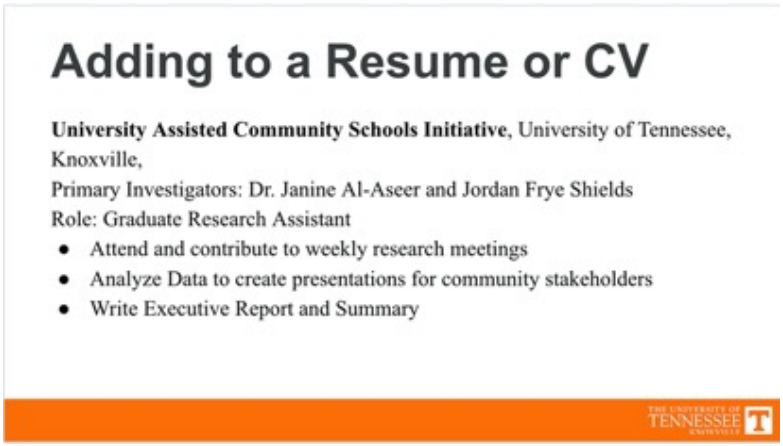


Figure 2: Slide from Internal Report Sharing CV Example

Phase Five: Action

From the data collected and thematic analyses, the two Community School initiatives were given recommendations for their campuses. For Site One, which has an established program, we offered suggestions for restructuring the program; for Site Two, which is establishing a program, we offered suggestions for structuring the program. For both programs, this meant assessing summer and fall programming and behavior initiatives. Suggestions and recommendations identified from the parent/caregiver and faculty/staff focus groups' themes were created by the outside consultant, while the suggestions and recommendations identified from the students' themes were created by the research team.

Data will be shared with stakeholders and community partners who will comprise each school's Site Steering Committee. Collectively, these groups will use the data to help determine how best to improve current programming and/or implement new programming. The data also serves as a benchmark for future assessment that can show growth—or lack thereof—in the perspectives of stakeholders in various arenas. The information gathered will assist in the production of applications toward federal grant opportunities and other large grants.

Impact on Researchers

While creating the presentation for the final research meeting, Dr. Beal asked the undergraduate researchers and graduate research assistants a series of questions to gauge their experiences during the project. When asked what they learned, one undergraduate student shared that they learned "every county will have its pros and cons when it comes to the education system. Not every school will provide something necessary for the kids [sic] meanwhile other schools can provide it," highlighting the inequalities in education that they witnessed. Others indicated the research process helped them learn and hone skills such as note-taking and analyzing data. Ms. Summers pointed to the "importance of symbiotic relationships" in research as being key to a successful project. Research group members were also asked to identify what they enjoyed about the project. Dr. Beal shared that her favorite part about the project was "learning about the Community School initiative in more detail and knowing our work will impact students and communities for many years to come," while the other researchers indicated they enjoyed working with the staff and children at Site One. Two undergraduate students even shared that they learned cooking and art skills from participating in Community School programming.

At the completion of the project, Dr. Beal sent each of the researchers a post-evaluation survey asking a series of questions regarding the overall impact of the project. The primary purpose for this survey was to gauge how this process impacted their understanding of qualitative research and the Community School initiative. One of the undergraduate student responses encapsulated the Community School initiative: "I was able to see first-hand the impact that the Community School initiative can have not only on the students and staff at the schools but members of the community as well!" For someone with limited understanding of the footprint of the Community School initiative, this project showed them how far-reaching the impact can be. Table 4 charts the responses of the remaining researchers:

Dr. Beal	I had never participated in Participatory Action Research. This project pushed me outside my comfort zone and taught me how to work with a group of researchers, rather than just myself.
Ms. Summers	I found that our work with focus groups had the biggest impact on my understanding of certain features in qualitative research [...] I learned more about qualitative research by DOING qualitative research on a team that truly functioned as a team--from beginning to end.
Undergraduate Student	I really enjoyed working as a team and learning from everyone else's experiences. I also loved being with the kids and hope I can continue to serve in the future.
Undergraduate Student	I really enjoyed the relationships I developed with students over the semester but also enjoyed working as a team. I learned a lot about Community Schools and qualitative research.

Table 4: Impact on Researchers from Post-Evaluation Survey

Dr. Al-Aseer developed a keen understanding of project management across skill sets and levels of understanding as well as delegation best practices. Project management proved heavy on the front end—creating a timeline for the process, identifying the material that was needed to develop the skill sets of the students, and meeting with each member individually. The timeline served as a road map; the skills-training allowed for researcher growth, and it was vital to get to know each research team member and identify their strengths and challenges. This paved the way for a clear delegation of tasks. While some tasks may have been more succinctly completed by Dr. Al-Aseer

alone, delegating out the training, oversight, and writing provided leadership opportunities for graduate students that served as a resume-builder and learning opportunity. It also allowed Dr. Al-Aseer to 'get out of the way' and allow student work to take the lead as the semester progressed, creating a collaborative impact.

Community School Perspective

The Community School initiative is built on including the voices of the stakeholders. This project sought to include the voices of the parents and caregivers with students who attend Shift 2. In doing so, they were able to voice their comments, questions, and concerns for the Community School initiative at their schools. Additionally, including the voices of the faculty and staff who lead the activities, clubs, and academics during Shift 2 allowed them to share successes and express concerns and grievances witnessed during work with the students. It was important to emphasize that the research team included the voices of the students in this process, as they are the ones who are directly impacted by the choices made by Site Coordinators and administration. Though the researchers came in with a set of semi-structured interview questions, the parent/caregiver and faculty/staff participants took the lead in focus group discussions to share their experiences. This led to rich qualitative data. The student interviews were more structured, but they too provided the researchers with data that was pertinent to answering the research questions.

Community School Coordinators

The site coordinators benefited from this project as they received data specific to their campus initiative. Within the University of Tennessee, work at a site is led by an Action Plan, which is created from a Needs and Assets assessment at a Community School site. A major part of the Community School Coordinator role is to collect data that informs the assessment, and through this research project, we were able to provide assistance to these ever-busy coordinators. As the data was collected without their direct involvement, it also limited biases that Coordinators might bring into data collection with their stakeholder groups. Data should inform future planning and directions, used as an asset by the coordinators in their work.

Next Steps

The work completed in this project impacted the futures of Site One and Site Two, as well as impacted the research team members. However, it became evident that future work needs to be done to understand the impact on individual university students. The research team was small; therefore, the results regarding overall impact are limited. As this kind of Participatory Action Research focuses on the recipients of the proposed solutions, it would be interesting to formally research the impact upon the researchers. This could be done by means of autoethnography, which involves the researcher situating themselves in the middle of living an experience and asking how their experience can improve the experiences of others (Chang, 2008; Denzin, 1997). By analyzing the impact the research process had on the researcher, a clearer understanding emerges regarding the outcomes of symbiotic relationships in PAR settings.

Future Steps

At the time of this writing, data collected through this project is being used to inform decision-making for the Fall 2022 term and will be presented to the Site Steering Committees at each site in order to fold it into future action plans. In addition, it is helping move work forward on impact modeling for the UACS initiative as a whole. Lastly, it continues the conversation about the effectiveness of the Community School initiative at Site One and Site Two for stakeholders, grant applications, and donors.

Moving forward, the hope is to continue the trend of year-long research cohort groups at the university while expanding the diversity of membership. Ideally, faculty from multidisciplinary fields will join as well and further expand our reach. Fulfilling one of the charges of a land-grant institution, this project embodies exactly the type of accessible research-based programs and resources for the improvement of communities within Tennessee. To

add robust experiential research opportunities for university students toward a mutually transformative research experience and participation in these communities is an additional boon.

Looking ahead, UT's UACS Research Team also looks forward to expanding our knowledge and collaboration opportunities through UACS-specific resources such as journal issues, the UACS network website, National and Regional networks, and other UACS teams who have generously reached out to identify ways we can collaborate. Bolstering the network of support while identifying ways to build community are of particular interest to our team and we are excited about the possibilities. Additionally, our site-based teams are currently in progress of forming Site Steering Committees to guide future work while incorporating more community voice. With the continued assistance and increased enrollment in the weekly research group, we are collaborating on the creation of preliminary Action Plans at each site and two IRB-approved studies on various facets addressing challenges identified in this process.

Closing Thoughts

This project had a wide range of impacts. At the heart of it, we sought to provide data to the UACS sites for improvements which impacted the stakeholders and coordinators. However, the UACS sites were not the only recipients of transformative information. The impacts were twofold. At the university level, completing this project impacted the researchers on the team, both undergraduate and graduate, and the primary investigator, as it introduced each researcher to a new way of participating in research and gave Dr. Al-Aseer an opportunity to develop a team of student researchers that continue to present day.

References

Adeoye-Olatunde, O. A., & Olenik, N. L. (2021). Research and scholarly methods: Semi-structured interviews. *Journal of the American College of Clinical Pharmacy*, 4(10), 1358-1367.

Braun, & Clarke, V. (2006). *Thematic analysis: a practical guide*. SAGE Publications Ltd.

Carpi, A., Ronan, D., Falconer, H., & Lents, N. (2017). Cultivating minority scientists: Undergraduate research increases self-efficacy and career ambitions for underrepresented students in STEM. *Journal of Research in Science Teaching,* 54(2), 169–194. https://doi.org/10.1002/tea.21341

Chang, H. (2008). *Autoethnography as method.* Routledge.

Chevalier, & Buckles, D. (2019). *Participatory action research: Theory and methods for engaged inquiry* (Second edition.). Routledge. https://doi.org/10.4324/9781351033268

Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology,* 12(3), 297–298. https://doi.org/10.1080/17439760.2016.1262613

Coalition for Community Schools. (2020) *What is a Community School?* Retrieved from http://www.communityschools.org/aboutschools/what_is_a_community_school.aspx#:~:text=A%20community%20school%20is%20both,stronger%20families%20and%20healthier%20communities.

Denzin, N. K. (1997). *Interpretive ethnography: Ethnographic practices for the 21st century*. Sage.

Hensley, & Davis-Kahl, S. (2017). Undergraduate research and the academic librarian: Case studies and best practices (Hensley & S. Davis-Kahl, Eds.). Association of College and Research Libraries, a division of the American Library Association.

Holmes, A. G. D. (2020). Researcher positionality--A consideration of its influence and place in qualitative research--A New Researcher Guide. *Shanlax International Journal of Education*, 8(4), 1-10.

Institute for Educational Leadership. (2017). *Community School Standards.* Retrieved from https://www.communityschools.org/wp-content/uploads/sites/2/2021/03/Community-School-Standards-Updatesd2017.pdf

Jacobson, D., & Mustafa, N. (2019). Social identity map: A reflexivity tool for practicing explicit positionality in critical qualitative research. *International Journal of Qualitative Methods,* 18, 1609406919870075.

James, A., Milenkiewicz, M., & Bucknam, A. (2007). *Participatory Action Research for educational leadership: Using data-driven decision making to improve schools.* (1st ed.). SAGE Publications.

Jenkins. (2021). Reshaping graduate education through innovation and experiential learning (T. S. (Toby S. Jenkins, Ed.). Information Science Reference, an imprint of IGI Global. https://doi.org/10.4018/978-1-7998-4836-3

Kemmis, S., & McTaggart, R. (2000). Participatory action research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 567-605). Thousand Oaks, CA

Krueger, D. (2015). *Moderating focus groups* [video]. Youtube. https://www.youtube.com/watch?v=xjHZsEcSqwo

McFarland, J., Hussar, B., Wang, X., Zhang, J., Wang, K., Rathbun, A., Barmer, A., Cataldi, E., and Mann, F. 2018. *The Condition of Education 2018: NCES 2018–144. U.S. Department of Education.* Washington, DC: National Center for Education Statistics. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2018144

Partnership for Future Learning. (n. d.) *Community Schools Playbook.* Washington: Creative Commons.

Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society*, 63(4), 655-660.

Stringer, E., & Genat, W. (2004). *Action research in health.* New Jersey: Pearson Education Inc.

Tufford, L., & Newman, P. (2012). Bracketing in qualitative research. *Qualitative social work,* 11(1), 80-96.

Appendix A: Interview Questions

Parent/Caregiver

General Questions

1. From your understanding, what does it mean to be a community school?
2. How did you learn about the community school program?
3. Can you describe what led you to enroll your child in the community school program?
4. Follow-up: How did you think your child would benefit?
5. How has the program benefited your child?
6. How could the program better meet your child's needs?
7. In what ways have the community school staff supported your family?
8. How could they better support your family?
9. Of all the things we've talked about today, what's the most important to you?

Needs Assessment Questions

1. What are the greatest needs in the [Site Name]?
2. What are the greatest assets of the [Site Name] community?
3. What changes would you like to see at [Site Name]?
4. How can the school better support your child and your family?

Faculty/Staff

Questions

1. What does it mean to be a community school?
2. What is the value of the community school program for you?
3. If you work in the program, what motivated you to get involved?
4. Describe how the community school strategy has impacted your school?
5. What type of change have you observed in the students who attend the after-school program?

1. Academic skills
2. Social/emotional skills

6. What type of change have you observed regarding the engagement, at school, of the parents or caregivers of students?
7. Think back to all your experiences with UACS. What has gone particularly well?
8. What opportunities do you see for improving or optimizing the UACS strategy at [Site Name]?
9. University Assisted Community Schools have primarily provided an after-school program at [Site Name]. Can you think of other ways in which the community school strategy could broaden the scope of their work to support students and staff outside of the after-school program?

Needs Assessment

1. What are the unmet needs at your school?

1. Probes

1. Biggest student needs this year
2. Needs of families
3. Staff needs

How can partners best support you as a teacher/staff member?
What are ways that parents/caregivers could be involved at [Site Name]?
In general, what's the greatest opportunity for improvement at [Site Name]?
Imagine it's May 2023, what would you like to see accomplished at [Site Name]?

Students

Note: "Shift 2" refers to any/all afterschool programming for K-5 students whereas "Shift 1" refers to the traditional school schedule 8am-2:45pm

Questions K-2nd Grade

1. What do you love about Shift 2?
2. What do you like least about Shift 2?
3. Imagine you could change anything about Shift 2, what would you change?
4. Have you made any new friends in Shift 2?

Questions 3rd-5th Grade

1. What do you love about Shift 2?
2. What do you like least about Shift 2?
3. Imagine you could change anything about Shift 2, what would you change?
4. Have you made any new friends in Shift 2 from Shift 1?
5. Have you learned anything new in Shift 2 that helps you in Shift 1?

University Advocates: Championing Future Leaders
Girl Talk: Hearing middle school young ladies' voices in an urban community-school-based mentoring program

Latosha Rowley, Ph.D., *IUPUI - Indiana University – Indianapolis*

Dr. Latosha Rowley is a recent graduate of the doctoral program in Urban Education Studies at IUPUI. She is a former urban public school educator and administrator in several Indianapolis public school systems. As a civic engaged scholar, she received the Sam H. Jones scholarship for civic leadership during her service-learning assignment as a Girl Talk mentor. Currently, she is a Program Manager for the IU Student Success Corps Young Scholars tutoring and mentoring program at IUPUI Family, School, and Neighborhood Engagement in the Office of Community Engagement.

Abstract

Since some school officials have positioned middle and high school young ladies of color as unapproachable, unteachable, and responsible for the limited academic opportunities they experienced (Neal-Jackson, 2018), having opportunities to express student voice is essential in their schooling for them to experience positive, healthy, racial, and cultural identity development. Research confirms that quality mentoring relationships have positive effects on young people in a variety of personal and academic situations (DuBois, Holloway, Valentine, & Cooper, 2002).

This paper describes my personal mentoring experiences as a graduate student with underserved Black and Latina young ladies in two urban public-school settings. I will share deep reflections about the practical and cultural strategies of IUPUI's Girl Talk mentoring program through my experience as both a researcher and a mentor in the program. In this study, my reflections helped me explore the cultural understanding of the young ladies' interactions, behaviors, and language through mentoring. Middle school young ladies' culture includes interactions with friend circles and social cliques, dealing with other people's behaviors such as gossiping, and trying to determine who you are through art, music, images, and language.

In this autoethnography, my voice and thoughts provide insight into the questions: Why is mentoring beneficial for young ladies of color in the middle school? What impact did the Girl Talk mentoring experience have on me and my sense of self? I also discuss the circumstances of student-centered learning opportunities in the program. Here I give attention to students' experiences that are shaped at least in part by cultural factors. I also highlight the benefits of mentoring for self-awareness and identity development, as well as the promotion of positive self-esteem and emotional, social, and physical well-being.

Introduction

The laughter, complaining, "trash talking", and arguing of middle school young ladies are familiar sounds that filled the Girl Talk mentoring space in the urban middle school classroom each week. As the young ladies quickly transitioned and settled into the interactive space, we began our sacred Girl Talk time, which was limited to a 40-minute window. In the hectic middle school schedule, we had to jump right into relationship building and this was not usually a smooth transition when the young ladies entered the classroom. In our Girl Talk sessions, we worked on checking in with them and sharing stories, but there were times when some of the young ladies refused to engage with us and I wondered why it was so hard to connect. We usually had better engagement when we played Icebreaker and Name games because these interactions provided opportunities to get to know each other. In addition to sharing stories and playing games, we spent time recognizing and acknowledging the power and value of each person's name. Names are a key element in a person's identity; therefore, we were intentional in using each other's names as often as possible in our Girl Talk sessions.

The Girl Talk mentoring program was designed to inspire, support, and encourage the young ladies to be leaders and understand their strength, ability, and brilliance in their sense of purpose and greatness. The Girl Talk program was conducted at two, university-assisted, urban, public middle schools. IUPUI[1] has engaged in a long-standing partnership with Indianapolis Public Schools, an urban serving school district with a high percentage of minoritized, marginalized families. The Girl Talk program was staffed with volunteer undergraduate and graduate student mentors from the university who agreed to commit to meeting with the middle school young ladies one day a week for at least one semester. Through the fun, enthusiasm, and rapport, we enjoyed bursts of energy as well as opportunities to share our desires and passion through engaged and meaningful conversation and interactions.

Literature Review

Positive Youth Development in Mentoring

Research indicates that Black girls have a higher risk of suffering from poor physical and mental health, experiencing violence and other hardships they face while living in poverty (Eccles & Gootman, 2002). Unfortunately, many teachers stereotype and see Black girls as loud and aggressive (Fordham, 1993). Because of these biased perceptions, Black girls often receive harsher disciplinary actions, such as suspensions and expulsions, than their white peers (Crenshaw et al., 2015), in an effort to silence them.

Mentoring can be a powerful tool for reducing the harmful effects of the negative stereotypes routinely experienced by Black girls. Strong mentoring programs provide positive social and emotional supports for youth, and build supportive relationships between mentees and more experienced mentors (Archard, 2011, 2013; DuBois & Karcher, 2014; Eccles & Gootman, 2002). Of particular significance, strong mentoring can strengthen student agency. Larson (2000) describes agency as the freedom to set goals and take steps to achieve the goals. According to Eccles and Gootman (2002) young people need to have opportunities to be responsible and engage in challenges that give them the freedom to do things for themselves because that is key in their own growth and development. When the young ladies understand themselves and their own needs, mentoring can better help them tap into resources, people, and opportunities to advocate for their needs. Mentors are important in the mentor-mentee relationship because mentors can be role models who demonstrate leadership skills while serving as motivators to help mentees rise above challenges (Jones, 2015).

Positive youth development in mentoring must be rooted in meaningful, consistent, and caring conversations that include building relationships with families, schools, and communities to meet the needs of mentees (Eccles &

[1] In 2023/2024, IUPUI will be restructured and rebranded as Indiana University – Indianapolis.

Gootman, 2002). In order to meet mentees' needs, the mentoring must also be culturally responsive with opportunities for the mentee to share their voice and develop their agency (Larson & Ngo, 2017; Serido, Borden & Perkins, 2011).

Girl Talk mentoring created a culturally responsive space that valued and appreciated the mentees while providing learning opportunities for the young ladies to gain a strong sense of belonging, identity, agency, voice, and leadership skills. The Girl Talk sessions centered on the young ladies' prior knowledge, perspectives, and everyday experiences. "Getting to Know You" became an important tool that mentors used to build relationships, increase engagement, and share relevant and meaningful learning about each other. The goal of the mentor sessions were to connect the young ladies' school learning with their out of school living experiences to value who they are, their knowledge, culture, and family life.

While researching this paper, I found personal and cultural connections with some of the young ladies as I tapped into their interests, values, traditions, and beliefs. We talked about sensitive topics that impact identity such as: beauty, power, stereotypes, racism, sexism, and classism.

Methodology and Limitations

Autoethnography

Autoethnography is a research method that allows me to use my personal experiences ("auto-") as a mentor to describe and interpret ("-graphy") the cultural practices of the university's Girl Talk program in an urban middle school setting. As the researcher in this study, I have written about a topic of personal relevance and importance in my life. This paper provides a space for me to reflect on my unique lived experiences as a mentor while also engaging in a self-examination of cultural understandings, connections, and encouragement to Black and Latina young ladies to love yourself, your skin, and your hair as beautiful.

My personal mentoring experiences serve as data to describe, analyze, and understand the cultural experience of being a mentor to urban middle school students. This study provides an opportunity for writing a self-narrative that combines introspection and cultural analysis for the social context of mentoring (Chang, 2008).

I selected autoethnography for this paper in order to describe and analyze my personal understandings and cultural experiences of the university sponsored Girl Talk program. This approach challenges the traditional ways of doing research by providing space to reflect on my stories about the program and treats the research as a political, socially just and socially conscious act that addresses health, wellness, social justice, race relations and Black and Latina girlhood challenges. In using the tenets of autobiography, I can write about myself and my experiences, and with the tenets of ethnography, I can draw on my involvement in the Girl Talk program. Thus, these two elements of autobiography and ethnography are combined to create an autoethnography method that is both process and product. Having both process and product is significant in this study because it allows me space to focus on mentoring relationships along with my personal narrative about my feelings and thoughts as I become part of the data. My goal is to gain a deeper understanding of the social construction of mentoring through a lens of race and gender.

When researchers write ethnographies, they produce a "thick description" of a culture (Geertz, 1973; Goodall, 2001) and include their personal experiences in the research to help with interpreting the culture for insiders and outsiders (Jorgenson, 2002). Autoethnography is similar to ethnography because it provides opportunities for the researcher to engage in storytelling (e.g., thinking about character and plot development). The researcher can show and tell the story using voice, language, and perspective, in addition to including beliefs, opinions, attitudes, and emotions as alterations of authorial voice. Thus, the autoethnographer as a storyteller tries to make the personal experience

meaningful and the cultural experience engaging for a wider and more diverse audience than traditional research (Bochner, 1997; Ellis, 1995; Goodall, 2006; Hooks, 1994).

The narrative texts presented in this study are stories that include descriptions and patterns of experiences shared between the middle school young ladies and me (Tedlock, 1991). There are also reflexive notes in this study that focused on the personal experiences I had in my fieldwork (Ellis, 2004). This study allowed me opportunities to examine myself and my experiences so that I could write personal narratives about the Girl Talk program and share the story with different audiences. As I analyzed my personal experiences in my journaling, I propose that the introspection helped me understand myself better as well as understand how my life as a mentor intersected with the cultural context of some of my mentees.

Writing is a tool to express a way of knowing and it is also a method of inquiry (Richardson, 2000). Consequently, writing personal stories can be therapeutic as it helps you make sense of yourself and your experiences (Kiesinger, 2002; Poulos, 2008). In this study, I have had opportunities to better understand relationships (Adams, 2006; Wyatt, 2008), reduce prejudice (Ellis, 2009), encourage personal responsibility and agency (Pelias, 2000, 2007), raise consciousness and promote cultural change (Ellis, 2002; Goodall, 2006), and give space for voice (Boylorn, 2006; Jago, 2002).

Writing personal stories is also a way for a researcher to identify other problems in their experiences in a particular social context (Goodall, 2006) as well as to validate feelings. Autoethnographers consider relational connections in their research and writing (Ellis, 2007). It is also a transformative paradigm that uses narratives, reflexive questioning, and meaning making about experiences when a researcher looks inward at self. This autoethnography provides space for readers to join me in an emotionally engaging story about Girl Talk mentoring where I made critical connections in my own learning by reflecting and understanding interactions and beliefs about the mentoring experiences of my own life (Ellis, 2004).

Critiques of autoethnography

Autoethnographers are often criticized for trying to seek and achieve the same goals as traditional ethnography. Critics want to hold autoethnography accountable to criteria in traditional ethnographies or to autobiographical standards of writing. Autoethnography is dismissed by adherents of social scientific standards as being insufficiently rigorous (Ellis, 2009) or using biased data based on personal experiences (Anderson, 2006; Atkinson, 1997) and not fulfilling scholarly obligations of hypothesizing, analyzing, and theorizing.

There is no denying that autoethnography is not conventional social science—and it doesn't claim to be. Autoethnography's key claim is that it is a valuable approach to research that, with other methods, increases our knowledge and understanding of social contexts and lived experiences. More specifically, autoethnography provides useful research that is not only rigorous, theoretical, and analytical, but also emotional, therapeutic, and inclusive of personal and social phenomena as process and product (Ellis, 2009; Hooks, 1994; Keller, 1995). Autoethnographers also write about research in evocative ways (Ellis, 1995) from their point of view, which provides readers who are affected by the writing an important opportunity to keep a conversation going about the research and the experiences.

Additional limitations of autoethnography include (1) The researcher's presence in gathering the data may affect a reader's response, including the possibility of unpleasant feelings about the stories that are told (Bochner, 1994; Ellis & Bochner, 1996), which may impact lack of meaning in the research. (2) The researcher's unwillingness to self-disclose all the facts about their experience may impact the quality of the data, the outcome, and findings. (3) Since the story is only based on the researcher's experiences and recall, this may limit the accuracy of the story and/or affect interpretation (Bochner, 1994; Denzin, 1989). In the case of this autoethnography, some of the facts may have been

unintentionally left out due to lack of memory recall, but the data that has been shared does not change the truth that was experienced.

I am both the researcher and mentor in the Girl Talk program, which poses the possibility of bias. However, my reflections on the Girl Talk sessions helped me think about my beliefs and assumptions about middle school young ladies of color. After some time had passed, hindsight was used as a process for thinking back on the Girl Talk experiences. As the researcher, I posed questions to myself connected to what I was doing as a mentor and why I chose mentoring. My questioning caused me to see the Girl Talk experiences one way but the mentees may have different thoughts about the mentoring experiences. Therefore, the reflective process helped me gain a deeper understanding of mentoring because I did not live through these experiences by myself (Bruner, 1993; Denzin, 1989, Freeman, 2004). My interactions with the middle school students and their personalities created experiences for me and provided an opportunity for me to reflect on those mentoring experiences. The mentoring experiences were based on collaborative interactions with the middle school mentees, but, unfortunately, at the time of this writing I did not have access to them to hear their thoughts about those experiences, or opportunities to add information that included their feelings about the learning connections to their lives in this paper. However, in writing this paper, I relied on my recorded journal notes to help me with recall (Delany, 2004; Goodall, 2006; Herrmann, 2005). The notes that I recorded were about memories and lived experiences that I perceived to be significant in my life as a mentor as well as about the lives of the young ladies (Bochner & Ellis, 1992; Denzin, 1989).

Participants

The Black and Latina middle school young ladies, ages 12-14, are the main characters in this study. There were 23-27 young ladies at each of the middle schools. The enrollment number in the Girl Talk program fluctuated due to a high mobility rate with students moving in and out of the two large, urban middle schools. Both schools had more male (56%) students than female (44%) students and needed programming that centered young ladies to address some of their challenges at school and outside school. Both schools had high free and reduced lunch populations at 75% - 80%. Both schools had 28%-30% special education population. One school had a higher Latino/Hispanic population and the other school had a higher Black/African American population. For the school that had a higher Latino/Hispanic population, we made sure we had mentors who spoke Spanish to ensure there were cultural connections with the mentees.

The racial composition of the two schools was:

School 1	School 2
Black/African American 69%	Black/African American 58%
Latino/Hispanic 11%	Latino/Hispanic 35%
Multiracial 5%	2 or more races 2%
White 15%	White 5%

We divided the young ladies into small groups of 5-6 young ladies per mentor because small groups allow room for more voice and choice with the mentees. Focusing on engaging activities and interacting with the mentees provided opportunities to understand their experiences. Understanding their experiences helped me explore my own experiences as a mentor. Therefore, I have been able to reflect my own thoughts, feelings, and experiences in my journal as I experienced professional growth and development as a mentor.

Data Generation and Collection

I collected information and wrote field notes in my journal about my mentoring experiences in the Girl Talk sessions. My writing about internal emotions and conflicts in dealing with middle school behaviors helped me generate understandings about the middle school culture of Black and Latina young ladies. My journal notes helped me reflect on what it means to be a Black or Latina middle school young lady attending an urban school. My self-reflective data about experiences was based on questions that I generated in my journal based on my thoughts, feelings, memories, and emotions about major events. I recorded descriptions of the circumstances surrounding Girl Talk events, cultural discovery, and details about why the event was important in my life as a mentor. I wrote about the personal connections I had with the young ladies and how we interacted to build a meaningful relationship.

Rigor and Trustworthiness

Culture is a product of interactions between self and others (Chang, 2008). Everyone has culture and personal stories. In this study, I have used my lived experiences, my thoughts, feelings, and ideas to transmit cultural understandings about the mentoring process with Black and Latina young ladies. Through my stories about my mentoring experiences, I spread my insights, knowledge, and understandings about the value and benefits of mentoring, especially when mentors share cultural connections with mentees.

Results

As I constantly asked myself questions about my experiences in the Girl Talk program, I discovered the themes listed above and the connections to my understanding of mentoring and my own experiences.

One of the questions I pondered on a regular basis with notes in my journal is "How has the program impacted the young ladies, but also how has the program impacted me?" In my journal, I kept a record of impactful events such as the community service project the young ladies participated in by creating care packages of personal toiletries for women seeking refuge at a domestic violence shelter. This was impactful for me to hear the young ladies share stories. For example, one young lady told the group about a woman she knew who was in an abusive relationship. This community service was connected to an activity called "Helping Hands." The young ladies listed positive words on hands they traced as they connected their thinking to the community service.

Figure 1. Girl Talk community service activity called "Helping Hands"

In addition to discussion and service projects, the young ladies participated in reading books that provided key prompts for our Girl Talk conversations. The two books in our Girl Talk curriculum were: *Talks My Mother Never Had With Me: A Loving Mother's Perspective for Young Women* by Dr. Ollie Watts Davis (2002) and a workbook of self-awareness and self-affirmation for young women, *Don't Give It Away!* by Iyanla Vanzant (1999). At the start of some of our Girl Talk sessions, I would display quotes or motivational thoughts, sometimes connected to the themes in the books, to encourage the young ladies to think about their personal goal setting and what they needed to do to remain strong despite struggles and challenges in their lives.

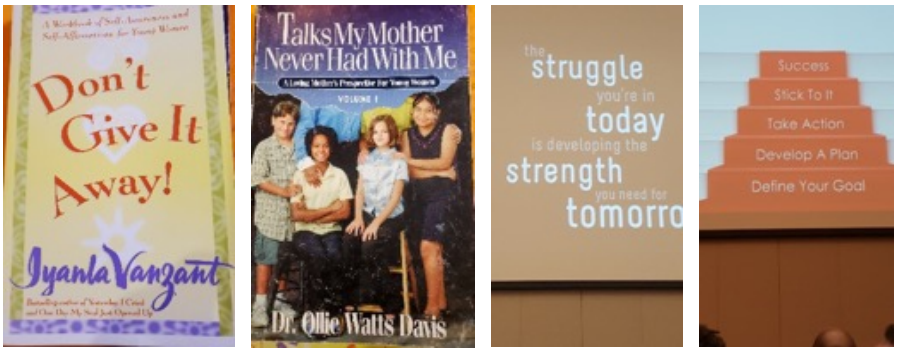


Figure 2. Books and Motivational Quotes used in GirlTalk Sessions

The books provided opportunities for me to talk about family and cultural values, sense of belonging, and identity with the young ladies. A section in the *Talks My Mother Never Had With Me* book included the title "You are Special," and this was an excellent prompt to start our Girl Talk discussions. Being special was important and centered as we engaged in conversation to get to know each other. The young ladies shared what was important in their lives and what made them special.

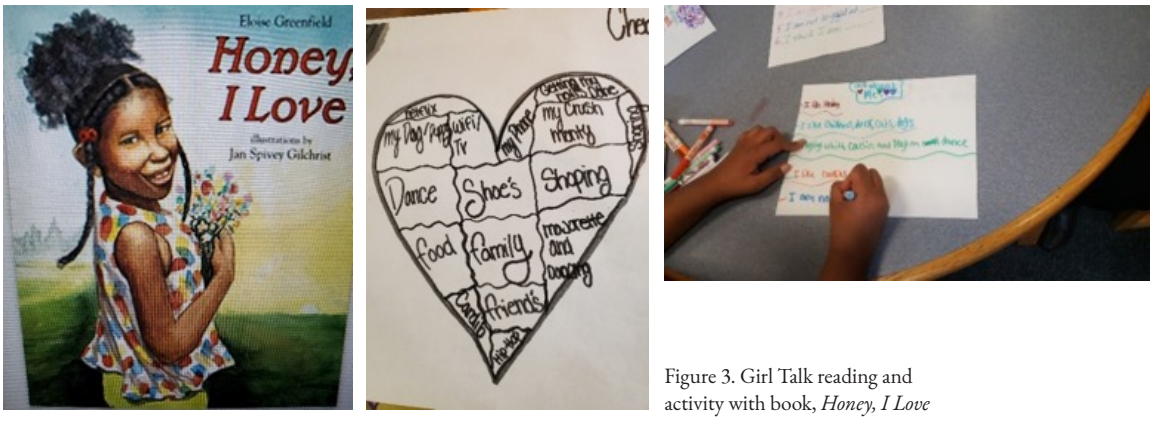


Figure 3. Girl Talk reading and activity with book, *Honey, I Love*

An activity that helped the young ladies focus on important things in their lives was reflecting on the read aloud book, *Honey, I Love* by Eloise Greenfield. After reading the book, the young ladies drew a heart and inside the heart they listed important things that they loved. Once they finished the heart, they talked about their hearts in small groups as another activity to get to know each other better. As a follow up activity, some young ladies made an identity poster about what they loved about themselves and what made them who they were. I reflected on the young ladies' increased engagement and high energy during this activity, and I noticed that they were more excited with this session, probably because this activity focused on them, and this was something different than they did in their regular classroom. Since the Girl Talk program mostly served disenfranchised young ladies of color in urban middle schools, the focus on "being special" was empowering and positively impactful,. This was true not only for the young ladies, but also for me as I reflected on my own life and what made me special, like being a mother and grandmother, having

the responsibility to guide, protect, and assist my children and my granddaughter establish life goals. Sharing of our stories helped the young ladies intentionally show care and love for each other. As I nurtured the mentees, I was also intentional in showing love and care for them. I remembered what my mother and grandmother used to say, and that was "actions speak louder than words," so I demonstrated commitment to the young ladies by focusing on their well-being and by investing in their hopes, dreams, and experiences as I helped guide them toward their future goals. The following themes emerged as I analyzed my journal notes.

Mentors pay it forward

Mentoring relationships are about mentors sharing experiences and telling stories about their lives to inspire, challenge, and encourage mentees to reach their goals. Mentors help shape mentees' lives. To send a message that college is important, I would wear my college shirt to the Girl Talk mentoring sessions as a way to inspire and motivate the mentees to prepare and plan for their own journeys to college. Each time I worked with the middle school young ladies, I felt a sense of responsibility to help them think about their hopes and dreams. The engagement activities we planned in our Girl Talk sessions were based on the young ladies' interests and this would create a pathway to talk about their futures. The middle school mentees shared dreams of becoming veterinarians, dentists, beauticians, professional basketball players, artists, and owners of a business. In my efforts to pay it forward, I would ask them questions about their futures to help them visualize who they wanted to become as their grown-up selves. Therefore, we created vision board collages together. The young ladies engaged in creatively expressing themselves as they cut out photos and pictures from magazines to show their future selves. Even though I already have a good idea of what I wanted to do for my career goals, I participated in the vision board activity with the young ladies because I wanted them to know that no matter how old you are you can still engage in thinking about the future. The vision board activity allowed space for me to think about my own future after graduation.

Figure 4. Student visioning board

In our Girl Talk sessions, I would share with the young ladies that their greatest challenge is to make good decisions and choices about the things they have control over. I also reminded them to change the things that they can change and not to beat themselves up about the things that they cannot change. In our Girl Talk discussion groups, we focused on key questions to enhance reflective thinking during each session. As an older, graduate student mentor, I remember a question the young ladies asked me that gave me an opportunity to share a typical mentoring response, but then the question led to my sharing a story on how to deal with a real-life crisis for one of the young ladies. The question was, "If you could live your life over, what would you change?"

I told the young ladies that I would change my spending habits and I would have saved more money to prepare for the future, especially to plan for retirement and travel. Also, I would have spent more time with my family, especially when the kids were little because they grow up so fast. Unfortunately, I spent so much time working that I missed out on some of the key milestones in their lives like when they started to walk and talk. The daycare workers gave me the report of these wonderful firsts when I would pick the children up after a long day at work.

One of the young ladies told me that the main thing she would like to change is her body. She said she hated her body and that she was tired of being teased and made fun of because her body was so big. I encouraged her to see and embrace her beauty because she was special and unique with gifts and talents. To connect with her and validate her feelings, I started telling her one of my stories. I let her know I had no control over the things that kids were teasing me about. I shared with her that I didn't like the way my two front teeth looked. I told her that kids were so mean to me about my teeth. They started calling me beaver face. I let her know that instead of getting mad I gained enough

courage to let the mean girls know that I appreciated my teeth just the way they were because that's what God gave me. I added a few important facts to let the girls know that my teeth have done a great job, they have helped me eat my food every day and this has helped keep me healthy. Talking with the young lady about my problem made me realize that mentoring can put you in a vulnerable space when you are transparent, however, there is so much power in sharing personal stories. When I shared my story, it made the young lady feel better about her situation. Even though I was vulnerable, I also demonstrated strength, and this was a model for her to see that this was something she could do too. Having this transparent sharing helped me build a positive relationship with this young lady and it was a valuable experience for me as a mentor a I paid it forward in her life.

Mentors are role models

I provided biographies of successful Black and Latina women so that the mentees could refer to role model examples and see possibilities for their lives. I believe that every girl needs a woman in their personal lives to help them navigate the challenges that they may face in the world. It is with wisdom that they will have the understanding to make critical decisions about life's issues. As a role model, it was one of my priorities as a mentor to give the young ladies clear directions to help them know their options and the possible paths they could take based on their interests and desires. I would tell the young ladies, "You are on your way to greatness. From the day you were born there was something special for you to do. Go and find your purpose." I encouraged them to know that they would get there as they developed physically, emotionally, and spiritually. I wanted to be one of the women that the young ladies could depend on and confide in with their stories, challenges, concerns, and problems. The benefits and gifts I wanted to share with the young ladies included:

- Wisdom to help them with challenges
- Developing a meaningful relationship with them
- Being a good role model on how to use wisdom for future decisions

One of the Girl Talk activities I did with the young ladies as a role model in their lives was helping them think about college and career preparation and choices. Each of the young ladies had a binder in which they could independently work on activities, so we could discuss what they discovered and learned in their personal inquiry. One activity that many of the young ladies enjoyed doing was a word search puzzle with college vocabulary terms for them to explore. This generated lots of discussion in the Girl Talk groups. It was exciting to hear them ask questions about what certain words meant.

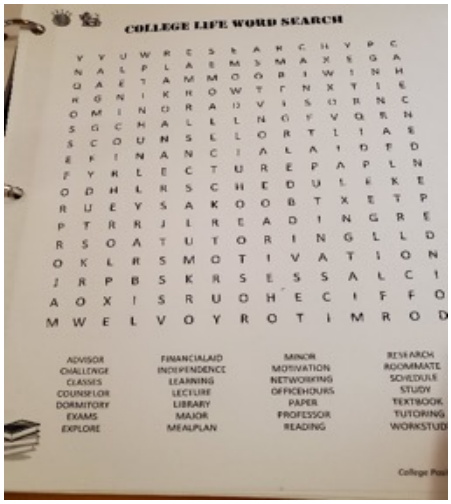


Figure 5. Puzzle with vocabulary terms

Building relationships is both challenging and rewarding

It takes time to build relationships and establish a healthy sharing community. Sharing personal stories and the ups and downs of experiences positively impacted the young ladies' lives, choices, and decisions. Some challenges happened, however, when the young ladies disengaged in the group activities. They were not always interested in sharing or hearing other people's stories and sometimes they were rude toward their peers. I still encouraged them to participate, and I realized that I had to love on them and let them know how special they were to break down barriers and walls that they put up. To re-engage the young ladies, I helped them think about what it means to have a positive attitude and I reminded them of their Girl Talk pledge they agreed to follow from Iyanla Vanzant's (1999) *Don't Give It Away* book that they were expressions of beauty, joy, and love (p.10) and that required them to engage in certain

behavior during Girl Talk. We talked about what they could do at school, at home, and in the community to create a peaceful world for themselves and others. These are the things I said to remind them to represent themselves well:

- "You are responsible for what you do and speak. Only you can control you. Be positive, eager to learn, and easy to get along with."
- "You cannot change another person's behavior. You must choose to be a positive role model for others."
- "Engage in self-talk to say positive things since words have a strong effect on who you are and striving to become."
- "Be hopeful and believe in yourself and your strengths. You can accomplish anything once your put your mind to it."

These reminders connect to self-discipline and self-regulation, and these were topics we covered in our Girl Talk curriculum, especially connected to a quote in the book, *Talks My Mother Never Had With Me:* "Self-discipline is the ability to make the right decisions and take the right action at the right time without anyone telling you" (p.62). The young ladies enjoyed working with markers and art-based activities. One of the young ladies said, coloring was "calming." When the young ladies were coloring or cutting paper in the art activities, they did not seem stressed. Seeing the young ladies during these activities helped me reflect on the importance of connecting art with the young people's identities This engagement made me realize how necessary it is to provide space for students to be creative and express themselves in diverse, authentic ways. Therefore, I made sure that we had some time to relax and chill with art and music to express ourselves during our Girl Talk sessions. I participated with the mentees during these expression sessions.

Figure 6. Art-based activities

Cultural connections in mentoring help mentees reach goals

Middle school young ladies' culture includes interactions with friend circles and social cliques, dealing with other people's behaviors such as gossiping, and trying to determine who you are through art, music, images, and language.

A primary goal in the Girl Talk program was to help the young ladies explore what it means to be a Black and Latina young lady attending an urban middle school. We also discussed caring about each other, understanding differences, and facing challenges at school and in the neighborhoods. A few quotes in one of our curriculum books that help guide the mentoring instruction with the young ladies: 1) "...the greatest challenge is to make a good decision. It is important to have wise adults share their experiences to help you decide what to do" (Davis, 2002, p. 189). 2) "Be the wonderful person you are created to be. The world needs you. You have a purpose to fulfill. Be the best you can be and that will be enough" (Davis, 2002, p. 209). Since the majority in our Girl Talk were Black and Latina young ladies, we wanted them to be open to developing a deeper friendship with each other, to be courageous in getting to know each

other, and to take risks that culturally bonded them together. We wanted the young ladies to understand the power of good decision-making as well as understanding they matter to the program and the world.

Some of the young ladies engaged in "trash talk" to get attention or laughs from others, and for other people, trash talking was just a way of interacting with each other. This way of interacting has become popular due to TV, social media, and any other entertainment space. We wanted to turn the hurting environment around so the young ladies could renew their hearts and minds with positive words and thoughts. However, the trash talking did make me remember when I was their age and that was what we did. As I now think about it, I know this was hateful, mean, and harmful. I realize now that the trash talking was a way to cover up and deal with the pain they may have in life such as abuse. Unfortunately, trash talking was a protection barrier and a tool for some young ladies to cause harm before someone hurt them. We wanted the young ladies to appreciate and value each other's culture especially since every culture makes a valuable contribution to our world. We discussed how our lives are rich because of the diversity of people and cultural gifts that people share with us. We encouraged the young ladies to use their mouths to encourage each other, show that they care about each other, and to demonstrate that they have intelligence, integrity, and character. In one of our curriculum books, we discussed not letting differences stop you from getting to know other people, therefore, we spent time focusing on the Ollie Watts Davis motto in *Talks My Mother Never Had With Me* (p. 165):

- "If I spend enough time with you, I will find something that I like about you.
- If you spend enough time with me, you will find something you like about me.
- If we spend enough time together, we will find more things that we have in common than we disagree on."

Many of the young ladies shared the stereotypes they experienced that were about their hair, skin tone, clothes they wore, fingernails, and the way they talked since they were Black and Latina. One of the Girl Talk activities we did to address this challenge in life was to write down the words and phrases connected to stereotypes on a small dry erase board and then erasing those negative words/phrases and replacing them with positive words and phrases.

Implications for Mentoring

My personal experiences as both a researcher and mentor with the Girl Talk program point to several key findings. First, Black and Latina young girls need mentors to support their development, advocate for them, and help them prepare for college and careers. Second, mentors with the same racial and ethnic background have an easier time connecting with mentees. Third, for the mentoring relationship to be successful for marginalized mentees, there needs to be power sharing and space for the mentees to share their voice and stories about their experiences. Finally, regardless of their personal background, effective mentors use culturally responsive engagement and provide opportunities for mentees to give back through community service projects. Effective mentoring programs are essential for positive development of middle school youth, particularly Black and Latina middle school young ladies.

Further research could collect more perspectives from the middle school young ladies, their families, and their communities. The mentoring program could also be improved by including families in the process. Some questions for further research could be: How can mentors become more effective with strategies that increase engagement with middle school young ladies? What can be added to mentor programs to effectively expose middle school youth to college and career readiness opportunities? What can mentors do to inspire Black and Latina young ladies to become mentors and pay it forward by investing in other people's lives? What needs to be done at the college level to prepare and develop more students to become culturally responsive mentors with a student-centered focus on implementing experiential learning experiences for middle school youth?

References

Adams, Tony E. (2006). Seeking father: Relationally reframing a troubled love story. *Qualitative Inquiry,* 12(4), 704-723.

Archard, N. (2011). Peer influence on female student leadership attainment, capacity, and development: A review of the literature and recommendations for practice. *American Journal of Community Psychology,* 59(3-4), 363-381.

Archard, N. (2013). Preparing adolescent girls for school and post-school leadership: Recommendations to school educators for educational staff, female students, and women leaders. *International Journal of Adolescence and Youth,* 18(3), 158-175.

Bochner, A. P. (1997). It's about time: Narrative and the divided self. *Qualitative Inquiry,* 3(4), 418-438.

Bochner, A. P. & Ellis, C. (1992). Personal narrative as a social approach to interpersonal communication. *Communication Theory,* 2(2), 165-172.

Boylorn, R. M. (2006). E pluribus unum (out of many, one). *Qualitative Inquiry,* 12(4), 651-680.

Bruner, J. (1993). The autobiographical process. In Robert Folkenflik (Ed.), *The culture of autobiography: Constructions of self-representation* (pp.38-56). Stanford, CA: Stanford University Press.

Chang, H. (2008). *Autoethnography as method.* Left Coast Press.

Crenshaw, K., Ocen, P., & Nanda, J. (2015). *Black girls matter: Pushed out, overpoliced, and underprotected.* New York: African American Policy Forum & Center for Intersectionality and Social Policy Studies.

Davis, O. W. (2002). *Talks my mother never had with me: A loving mother's perspective for young women.* Champaign, IL: KJAC Publishing.

Delany, S. R. (2004). *The motion of light in water.* Minneapolis: University of Minnesota Press.

Denzin, N. K. (1989). *Interpretive biography.* Newbury Park, CA: Sage.

DuBois, D. L. & Karcher, M. (2014). Youth mentoring in contemporary perspective. *Handbook of Youth Mentoring.* doi.10.4135/9781412996907.n1

Eccles, J., & Gootman, J. A. (2002). *Community programs to promote youth development.* Washington, DC: National Research Council and Institute of Medicine.

Ellis, C. (1995). *Final negotiations: A story of love, loss, and chronic illness.* Philadelphia: Temple University Press.

Ellis, C. (2002). Being real: Moving inward toward social change. *Qualitative Studies in Education,* 15(4), 399-406.

Ellis, C. (2004). *The ethnographic I: A methodological novel about autoethnography.* Walnut Creek, CA: AltaMira Press.

Ellis, C. (2007). Telling secrets, revealing lives: Relational ethics in research with intimate others. *Qualitative Inquiry,* 13(1), 3-29.

Ellis, C. (2009). Telling tales on neighbors: Ethics in two voices. *International Review of Qualitative Research,* 2(1), 3-28.

Ellis, C., & Bochner, A. P. (Eds.). (1996). *Composing ethnography: Alternative forms of qualitative writing.* AltaMira Press.

Fordham, S. (1993). "Those loud Black girls", (Black) women, silence, gender "passing" in the academy. *Anthropology & Education Quarterly,* 24(1). doi.10.1525/aeq.1993.24.1.05x1736t

Freeman, M. (2004). Data are everywhere: Narrative criticism in the literature of experience. In Colette Daiute & Cynthia Lightfoot (Eds.), *Narrative analysis: Studying the development of individuals in society* (pp.63-81). Thousand Oaks, CA: Sage.

Geertz, C. (1973). *The interpretation of cultures.* New York: Basic Books.

Goodall, B. H.L. (2001). *Writing the new ethnography.* Walnut Creek, CA: AltaMira.

Goodall, B. H.L. (2006). *A need to know: The clandestine history of a CIA family.* Walnut Creek, CA: Left Coast Press.

Herrmann, A. F. (2005). My father's ghost: Interrogating family photos. *Journal of Loss and Trauma,* 10(4), 337-346.

hooks, b. (1994). *Teaching to transgress: Education as the practice of freedom.* New York: Routledge.

Jago, B. J. (2002). Chronicling an academic depression. *Journal of Contemporary Ethnography,* 31(6), 729-757.

Jorgenson, J. (2002). Engineering selves: Negotiating gender and identity in technical work. *Management Communication Quarterly,* 15(3), 350-380.

Jones, J. J. (2015). The mis-education of Black girls: Learning in a White system. In C. F. Collins (Ed.). *Black girls and adolescents: Facing the challenges* (pp. 269-284). Sant Barbara, CA: Praeger.

Kiesinger, C. E. (2002). My father's shoes: The therapeutic value of narrative reframing. In Arthur P. Bochner & Carolyn Ellis (Eds.), *Ethnographically speaking: Autoethnography, literature, and aesthetics* (pp.95-114). Walnut Creek, CA: AltaMira.

Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychologist,* 55(1), 170-183.

Larson, R. W., & Mgo, B. (2017). Introduction to special issue: The importance of culture in youth programs. *Journal of Adolescent Research,* 32(1), 3-10.

Neal-Jackson, A. (2018). A meta-ethnographic review of the experiences of African American girls and young women in K-12 education. *Review of Educational Research,* 88(4). doi.org/10.3102/0034654318760785

Pelias, R. J. (2000). The critical life. *Communication Education,* 49(3), 220-228.

Pelias, R. J. (2007). Jarheads, girly men, and the pleasures of violence. *Qualitative Inquiry,* 13(7), 945-959.

Poulos, C. N. (2008). *Accidental ethnography: An inquiry into family secrecy.* Walnut Creek, CA: Left Coast Press.

Serido, J., Borden, I. M., & Perkins, D. F. (2011). Moving beyond youth voice. *Youth & Society,* 43(1), 44-63.

Tedlock, B. (1991). From participant observation to the observation of participation: The emergence of narrative ethnography. *Journal of Anthropological Research,* 47(1), 69-94.

Vanzant, I. (1999). *Don't give it away.* New York: Fireside Book

Wyatt, Jonathan (2008). No longer loss: Autoethnographic stammering. *Qualitative Inquiry,* 14(6), 955-967.

Creating the Context for Whole Child Education: District Systems of Teacher Leadership for Community School Settings

Natalie Fensterstock
University of California - Los Angeles

Natalie Fensterstock is a Ph.D. student in Social Welfare in the UCLA Luskin School of Public Affairs. As a graduate student researcher with the UCLA Center for Community Schooling, her scholarship examines the organization of whole child education systems and the collective capacity of school staff and allied professionals. Her research is informed by her work as a secondary English teacher and new teacher coach in California.

Abstract

Within the context of growing investment in the community schooling strategy both in the United States and globally, this article serves to identify innovative practices in developing systems of teacher leadership for whole child education. An exploratory dual-case study design supports the examination of how two urban school districts—Anaheim Union High School District in Southern California and Surrey Schools in British Columbia—develop systems for teacher leadership within the community school setting, with a particular focus on high schools. Through extensive document review, site visits, focus groups, and iterative intensive interviewing cycles, our team identified key drivers and accelerants for developing district systems of teacher leadership for whole child education. Findings center on the structures and processes that empower community school teachers to integrate the whole child into curriculum, instruction, and culture-building routines. This article emphasizes two themes: (1) an enabling culture of innovation at the district level and (2) the processes of collaborative leadership and collective efficacy amongst teachers. Identified themes seek to inform the growing body of research on systems that enable teachers to lead in their expanded and integrative role within community schools.

Introduction

The COVID-19 pandemic brought renewed attention to the persistent inequities in student need, highlighting the role of public schools in filling in the gaps of the social welfare safety net (Kantor & Lowe, 2016). Precarious times call for a shift towards a schooling model that leverages students' identities and experiences as assets, that centers social and emotional development alongside academic growth, and that supports the whole child. Community schools—with six key practices that include (1) expanded, enriched learning opportunities; (2) rigorous, community-connected classroom instruction; (3) culture of belonging, safety, and care; (4) integrated systems of support; (5) powerful student and family engagement; and (6) collaborative leadership, shared power and voice—are uniquely positioned to lead this shift (Community Schools Forward, 2023). While calls for whole child education and community schooling are growing across the globe (Winthrop & Vegas, 2020), California is leading the charge in the United States with a historic investment of $4.1 billion to create community schools in low-income neighborhoods (California Department of Education, 2022a; Fensterwald & Xie, 2022).

Within the context of growing investment in the community schooling strategy, this article serves to identify innovative practices in developing systems of teacher leadership for whole child education. Limited attention has been paid to the role of teachers in leading and sustaining the work of community schools (Sanders et al., 2018; Quartz et al. 2020). This article seeks to add perspectives to this issue through an emphasis on collaborative leadership and practices and an exploration of the integral role of teacher leaders in galvanizing a system of whole child education in community-school settings. Themes surfaced from two exploratory case studies of districts—Surrey Schools (Surrey) in British Columbia and Anaheim Union High School District (Anaheim) in Southern California—point to the importance of creating the conditions for teachers to collaborate and innovate in support of the whole child. While the dual-case study focused broadly on districts as units of change, close attention was paid to high schools, which have proven to be the most impervious to deep transformation of teaching and learning (Sizer, 1984; Mehta & Fine, 2019).

The struggle to collaboratively lead and innovate within the structure of a credit-based high school system is one I can personally identify with. As a former middle and high school English teacher and new teacher coach in Northern California, I was able to bring a grounded perspective to our research team and a deep appreciation for the authentic approaches each of our district partners has taken to empower teachers to lead and innovate in community. Having spent time in schools across the Bay area in other capacities, I often wondered why students in high-income communities were presented with educational experiences that honored their whole being. I observed that these students engaged with meditation techniques, gardening, and project-based learning, for example, while students in the urban, low-income schools I taught at were primarily relegated to a drill-the-skills curricular approach, removing elective courses to make space for double-blocked English and math. I asked these questions first as a MA student in a Comparative Education program and now as a PhD student in Social Welfare. This article documents an exploratory dual-case study that illuminates the district vision required to enable teachers to lead in pursuit of educating and nurturing the whole child, regardless of student socioeconomic background. Students in Anaheim *do* meditate, garden, and engage in civic action projects. Students in Surrey *do* engage with the culinary arts, social justice groups, and interdisciplinary humanities/arts curriculum. In this article, I outline how these two progressive districts serving diverse student populations encourage teacher leadership to honor the whole child within a collaborative community school setting.

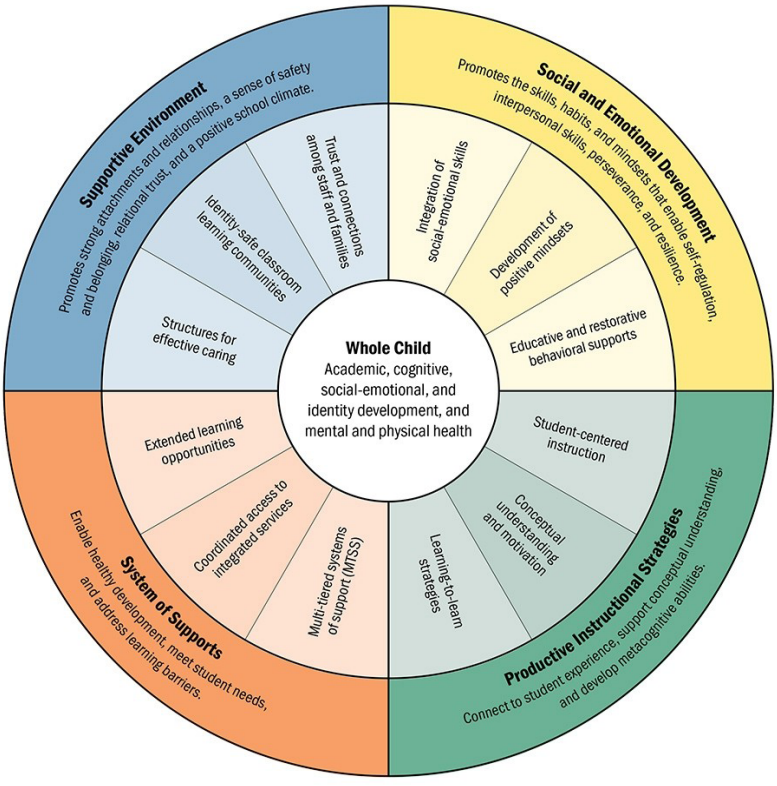
Community school teachers are at the helm of implementing best practices, including fostering supportive environments, developing social and emotional capacity, and implementing student-centered and culturally relevant instruction (Daniel et al., 2019; Saunders et al., 2021). Yet, there is limited attention paid to the role of teachers in delivering on the promise of community schooling (Sanders et al., 2018; Quartz et al., 2020) and a commonly held "misperception that community schools primarily focus on the provision of external supports rather than influencing the character of teaching and learning to enable student success" (Saunders et al., 2021, p. v). Building on the work of Daniel, Quartz, and Oakes (2019), which

outlines the expanded role of the community school teacher, this dual-case study explores how districts support systems for teacher leadership within the community school setting. It sheds light on the structures and processes that empower community school teachers to integrate the whole child into curriculum, instruction, and culture-building routines. This article will focus on two themes: an enabling culture of innovation at the district level and the processes of collaborative leadership and collective efficacy amongst teachers. These two concepts are inextricably linked and beget one another, demonstrating a fluidity between district policy and in-classroom experience.

Developing District Systems of Teacher Leadership in Support of the Whole Child

Whole child education is rooted in the science of learning and development (SoLD), which informs the relationship between environmental and biological factors as they impact student learning (Saunders et al., 2021; Osher et al. 2020; Cantor et al., 2018). The whole child is seen through six elements: physical health, mental health, social emotional development, identity development, cognitive development, and academic development (Chan Zuckerberg Initiative, 2022; Saunders et al., 2021; Darling-Hammond & Cook-Harvey, 2018). Several frameworks have developed over the years to inform instruction and school design in support of the whole child (California Department of Education, 2022; Darling-Hammond & Cook-Harvey, 2018; Yoder, 2014). California's whole child framework centers on safe, engaged, supported, healthy, and challenged students with a cradle-to- career approach (2022), while Darling-Hammond and Cook-Harvey's framework (2018), in alignment with SoLD's principles, focuses more explicitly on four school structures and practices that facilitate whole child development (see Figure 1). Elements of these frameworks naturally nest within the six key practices of community schooling—(1) expanded, enriched learning opportunities; (2) rigorous, community-connected classroom instruction; (3) culture of belonging, safety, and care; (4) integrated systems of support; (5) powerful student and family engagement; and (6) collaborative leadership, shared power and voice—with overlap existing at many points (Community Schools Forward, 2023).

Community school teachers who teach to the whole child take on an expanded role, developing a more progressive and integrated practice than the traditional purveyor of academic content. Daniel, Quartz, and Oakes (2019) define the community school teacher as an "activist who work[s] with the community to ensure equitable access to resources, and being partners who work with communities to strengthen curriculum and instruction" (p. 455). They also note that community schools can encourage and support individuals who are not traditionally brought into the teaching profession,



Source: Darling-Hammond, L., & Cook-Harvey, C. M. (2018). *Educating the whole child: Improving school climate to support student success.* Learning Policy Institute.

Figure 1. A Framework for Whole Child Education.

such as parents and community members from low-income neighborhoods, to become teachers. Such an approach exemplifies a sustainable option for building the teaching pipeline.

Community school teachers oriented toward the whole child incorporate particular practices into their instruction and culture-building routines. They collaboratively design learning opportunities for their school and broader community (Daniel et al., 2019), which promotes a culturally responsive curricular approach wherein teachers build on students' prior learning, identity development, and local community norms (Sanders et al., 2018). They adapt curriculum to incorporate 21st century skills that work to address complex, real-world challenges and develop the requisite competence and optimism to engage (Galindo & Sanders, 2021; Saunders et al., 2021). Moreover, community school teachers center social and emotional learning (SEL) alongside traditional academic content and work to build trusting relationships with students, families, and colleagues (Saunders et al., 2021; Yoder, 2014).

District support of whole child education and community school approaches enables the necessary integrative work of community schooling (Fehrer & Leos-Urbel, 2016). The partnerships and sustained collaborative leadership inherent in both the community schooling approach and the whole child framework suggest cooperation is needed within the broader ecosystem in which schools operate. Districts that engage schools and teachers in a collective vision are better equipped to create lasting organizational change (Fullan, 2002). Additional research is needed to understand the nuances of how districts authentically incorporate stakeholder voice into building such a collective vision that sustains the work of community schooling for whole child education. This said, teachers, the daily implementers of whole child education and the heart of community schools, play a vital role (Saunders et al., 2021; Daniel et al., 2019). Teachers who report feeling trusted, respected, and granted professional authority by their district community exhibit a commitment to the profession and pride in being a teacher. This article outlines ways in which two districts seek to build district communities that incubate a culture of teacher leadership (McLaughlin, 1992).

Two Exploratory Case Studies: An In-Depth Look at Innovation and Collaboration

Over the course of a year, I served as a member of a research team from the UCLA Center for Community Schooling and the University of South Carolina, in partnership with the National Center on Education and the Economy, that conducted two exploratory case studies in Anaheim Union High School District in Southern California and Surrey Schools in British Columbia to document the role of teacher leaders for whole child education in community school settings. The effort seeks to better understand how the two districts are developing teachers as leaders. Districts were selected based on proven commitments to deeper, student-led learning and whole child education.

Anaheim Union High School District (Anaheim) serves approximately 27,000 students in 19 junior and high schools. About 68% of the district's students (grades 7-12) are Latinx, and 4 out of 5 students have been designated as socioeconomically disadvantaged. Since a superintendency change in the mid-2010s, this district has been on a steady march toward supporting whole child education and deeper, personalized, equitable learning. They have launched a wide variety of initiatives aimed at elevating student voice and linking academic and entrepreneurial skills. This district also demonstrates a commitment to empowering teachers by offering them several opportunities to leverage their skills to support fellow teachers. A peer-coaching model provides built-in release time that enables teachers to support their colleagues during the school day, with a focus on integrating 21st century skill-building into lesson plans and classroom practices. Career and college pathway teachers are creating innovative ways for students to be career ready. Industry partnerships have resulted in student certifications in marketable skills while still in high school and a district-wide community mentorship program has enabled students to earn college credit for summer internships. Anaheim has shifted towards a vision of college, career, and life success, which in tandem with intentional learning practices, has led to positive student outcomes, including a

43% increase in admissions to a local University of California (UC) campus. Through the California Community Schools Partnership Program (CCSPP), Anaheim was awarded a sizable implementation grant to continue to build their community school programs.

Surrey Schools (Surrey) serves over 74,000 K-12 students in 128 schools. There are more than 3,200 students of indigenous ancestry (First Nations, Metis, and Inuit). More than 190 languages other than English are represented in district schools, the highest percentages of which are Punjabi, Mandarin, Tagalog (Filipino), Hindi and Arabic. The district adheres to a powerful theory of change, with student-led learning, identity affirmation, and a push towards integrative approaches at the forefront. Teacher leaders, school-site administrators, and district administrators work together at the system level to build knowledge and capacity. With a recent legacy of innovative superintendents at the helm, Surrey has developed a focus on core competencies that place social and personal skills on a par with communication and thinking. In conjunction with a shift towards student self-assessment, Surrey's competency-based curriculum (which aligns with the province) works to foster student agency and build on students' interests. Teachers are empowered to leverage inquiry-based approaches and work in multidisciplinary teams to drive academic, social, emotional, and cultural outcomes. Surrey's commitment to developing teachers as leaders is seen in their provision of regular release time to pursue collaboration and development within the normal school day. Positional leadership is also fostered through coaching roles at the district and school level where teacher leaders see themselves in deep community with their colleagues, helping to support their peers' innovations through collaboration. Many partnerships with local universities and community organizations support the district in integrating student supports and preparing students for college, careers, and success in life. While Surrey does not explicitly identify as a "community schooling" district, their school structures and district vision reflect the six key practices (Community Schools Forward, 2023), and their educators engage several of the whole child approaches central to community schools (Saunders et al., 2021).

In selecting these two districts, our research team sought to understand:

1) How are two innovative districts moving toward a system of teacher leadership for whole child education?

    a) How are they recruiting, preparing, inducting, developing, and evaluating teachers in light of their efforts to support whole child education and community schooling?

    b) How are they establishing systems of teacher leadership to promote deeper, more equitable learning?

In this article, I focus primarily on the systems and structures in place within each district once teachers are hired and have begun teaching students. In highlighting the culture of enabling innovation at the district level and the collaborative leadership and collective efficacy amongst teachers, this article sketches two examples of rich district contexts for whole child education in the community schooling setting.

Methodology

The project utilized a dual case study qualitative approach, selecting two geographically disparate school districts and focusing explicitly on high school settings (Creswell & Poth, 2018). We employed multiple forms of data collection including in-depth document analysis, site visits, interviews, and focus groups. Moreover, we engaged two advisory teams—one international team of education researchers, professors, and policy leaders and another team of teacher leaders from our two districts. These groups have guided our research questions, vision, data collection protocols, and analysis processes. The purpose and distinct role of each advisory team is discussed further below.

Identifying Case Study Sites

Districts were identified for their commitments to deeper, student-led learning and whole child education. The broader sociopolitical contexts of California's historic investment in community schooling (CDE, 2022a,b; Fensterwald & Xie, 2022) and British Columbia's newly established high school graduation requirements that support students in expanding their knowledge about indigenous perspective, histories, and cultures (Little & Garcha, 2022) provided fertile ground to identify emerging innovations and best practices. Surrey was specifically identified through the work of an advisory board member while Anaheim was ultimately selected after careful consideration of several districts across California based on conversations with researchers, philanthropists, and community school advocates. In initially selecting sites, I conducted a literature review of existing data on the districts, including demographics of students and staff, district leadership, school climate measures, collective bargaining agreements, and evidence of a commitment to the community schooling model via programs, partnerships, and practices. These factors were selected to ensure districts served an appropriately diverse population of students and to confirm an innovative vision and commitment to whole child education at the district level.

Document Analysis: The Grid

Once districts were identified and initial meetings with district leadership were conducted to ensure interest in study participation, district leaders engaged in a document collection and analysis exercise. The goal of completing the data collection tool was to develop a preliminary snapshot of Surrey and Anaheim that would later inform interview protocols for site visits. Each district was provided with a grid that included six key questions and space to link documents, explain evidence, and provide context and insight (see Figure 2). The six questions covered the initial scope of the project:

1) How are districts supporting whole child education and deeper, personalized, equitable learning?
2) How are districts collaborating with local educator preparation programs (and other professional development providers) in recruiting and preparing teachers for community schooling?
3) How are districts inducting, mentoring, developing, and evaluating teachers in light of their efforts to support whole child education and community schooling?
4) How are districts allocating people - certified educators, substitutes, paraprofessionals and other helping professionals - and what are the implications for creating a system of leading teachers to help lead the work of community schooling?
5) How can high schools create time for teachers to learn and lead on behalf of community schooling?
6) How are districts beginning to recognize teachers as leaders for community schooling, and what implications do these practices have for leadership and compensation practices?

Question 1: How are districts supporting the whole child education and deeper, personalizd, equitable learning?			
Probes	**Documents** Please link any district or school-level documents related to the question	**Evidence** Discuss examples and initiatives related to the question	**Insight** Share team conversation and individual thoughts on documents and evidence for each question.
Example (non-content specific)	**Insert Link To Document**	South Carolina: District of 16,000 students is spending $1.2 million on substitute teachers annually.	Could we use these funds to hire permanent teachers or build out more time for existing teachers to fill these needed roles? We could use permanent teachers and expand their role to hold multiple assignments. This would be better than hiring subs as permanent teachers would be deeply familiar with the context and foundation of the school.

Figure 2: components and organization of district document/insight collection tool.

Probes ranged in content from elements of whole child education and community schooling to examining the effectiveness of teacher preparation partners to mentorship practices. District leaders could also add their own context-specific examples. They were provided several weeks to fill in the grid and were encouraged to discuss questions with members of the research team. For one district, I transcribed responses from an administrator directly into the document to support the process. For another district, members of the research team held a call part way through the process to discuss how to use the document and to validate that the district was on the right track with completing the grid. Communication was open and consistent throughout.

After district administrators finished compiling their responses, the research team examined all information, developed summary responses for each question, as well as drafted follow-up questions prompted by the data. The research team also provided insight back to each district.

Conversations with District Administrators: Reflections on Learning from Documents

Soon after the completion of the initial analysis of the district documents, district administrators engaged in conversations with researchers to discuss reflections and ask clarifying questions. We were then able to begin developing a narrative around how each district was navigating the development of teacher leadership systems for whole child education. During these meetings, questions were identified based on their suitability for teachers and for site-level administrators and superintendents. These conversations helped to inform the development of interview protocols and "look fors" for spring site visits. Site visit schedules were designed, leveraging a purposive sampling approach (Creswell & Poth, 2018) to identify groups of teachers and administrators that could best illuminate the inner-workings of how teacher leadership is developed, nurtured, and systematized. District administrators ultimately selected teachers to invite for focus group discussions based on the criteria provided by the research team and the project goals.

Site Visits: Focus Groups and Interviews

Site visits were conducted throughout the spring of 2022 to both Surrey and Anaheim. Given the proximity to UCLA, more frequent (but shorter) visits were made to Anaheim, wherein we attended community school steering committee meetings and glimpsed the collaborative planning process for the CCSPP grant cycle. We were able to spend time at high schools and experience an innovative teacher-led project that brings together elements of social justice, community engagement, entrepreneurship, and agriculture. Three focus groups with teacher leaders, coaches, and school site principals were also conducted, providing deeper insight into how each role leads within the district and community. During our site visit to Surrey, focus groups were conducted with multiple groups of teacher leaders, coaches, and district administrators. One in-depth interview was conducted with a school site leader, which provided insight into the history of leadership and innovation within this particular school, L.A. Matheson, in connection with the district at large. Significant time was spent at one high school with a particularly diverse and high-needs student population and a legacy of community and teacher innovation. Site visits served as the deepest data collection point and provided stories and examples to bring life to many of the ideas discussed at earlier points in the research process.

Leading Teachers Advisory Group: Member Checking

Early on in the research process, team members asked district administrators to think of one to two teacher leaders who might be interested in serving on a teacher advisory committee, with compensation for the teacher leaders' time. The final roster of teacher leaders came together after the site visits, when we were equipped to understand what perspective and

expertise each teacher might be able to offer to the team. The committee was ultimately composed of three teacher leaders who also serve as peer coaches in the California district, one teacher leader who is a department head in the Canadian district, and several district teacher coaches from the Canadian district who can support different elements of the project based on their unique area of expertise.

The purpose of the committee was to:

1. Ensure accuracy of data analysis and theme generation (member-check analysis);
2. Continue to generate ideas and build upon themes surfaced during data collection;
3. Create a space for dialogue and learning across districts in California and Canada;
4. Plan for a practice convening in October 2022 for leaders from both districts to meet in-person, learn from one another, and develop field-facing products that can assist with system development and implementation; and,
5. Develop opportunities for teacher leaders to co-author both academic and field-facing written products in partnership with the research team.

International Advisory Board

The project has also benefited from the input of an advisory board composed of award-winning National Board Certified teacher leaders, academics, superintendents, and policy experts representing the United Kingdom, Australia, Sweden, Canada, and the United States. This board has convened twice over the course of the project and is likely to convene a third time to inform an additional phase of the work.

The purpose of the advisory board is to:

1. Provide feedback and advice on the direction and vision of the research project;
2. Engage in provocative discussion on initial findings and themes; and
3. Tie findings to future directions for the International Summit on the Teaching Profession.

Data Analysis and Findings

Data was analyzed throughout the collection process, with initial findings informing next steps. The dual case study was iterative in nature, soliciting feedback from partners throughout and adjusting course as needed. Focus groups and interviews were transcribed using Otter.ai and analyzed using both descriptive and thematic coding (Saldaña, 2013). A set of initial themes was developed early in the data collection process and repeatedly refined based on continued research.

District partners were frequently asked what they needed: Were there any questions that researchers could ask to develop insight into the district's own identified problems of practice? Were there field-facing products that would be most helpful to create for their teachers, students, and broader community? Were there connections that could be facilitated between districts, education thought leaders, and the broader community schooling community? This component of the process led to superintendents engaging with the international advisory board, the conceptualization of a learning exchange between teachers in the two districts, and the creation of practitioner- and community-oriented written and multimedia products intended to lift up stories and best practices of teacher leadership for whole child education. This approach serves as a way to bridge the gap between research and practice, leading to both richer data collection and the development of longer term, mutually beneficial partnerships.[1]

[1] Research-practice partnerships (RPPs) offer one method of engaging researchers, school and program leaders, policymakers, families and students, and teachers and staff in a collaborative inquiry process. The UCLA Center for Community Schooling (2022) utilizes the RPP approach "to inform practice, ensure accountability, and create generalizable knowledge," often co-authored by researchers and practitioners (UCLA Center for Community Schooling, 2022, para. 3).

Creating the Conditions for Teacher Leadership in Support of the Whole Child

The project has revealed to me several themes that suggest key elements for creating the conditions for teacher leadership in support of the whole child in community school settings. Two themes are discussed below: the culture of enabling innovation at the district level and the collaborative leadership and collective efficacy amongst teachers. Both Surrey and Anaheim demonstrated deep commitments to empowering their teachers as leaders. In every interview and focus group during the Surrey visit, for example, participants brought up concepts of 'trust' and 'autonomy.' It became clear through conversations and data analysis that there was an underlying culture alive within each district that *enabled* teachers to support students in authentic and holistic ways.

Culture of Enabling Innovation at the District Level

Both Surrey and Anaheim have demonstrated a commitment to moving beyond an era of accountability and standardized testing (Hennessey, 2015; Klein, 2015; Robinson 2010), recognizing that their students and communities need something different to be college, career, and life ready. They understand the dynamic capacity and freedom required to identify individual students' needs and meet those unique requirements in a classroom setting. In response to this recognition, district leaders, in partnership with their broader education communities, have incubated cultures of innovation that empower teachers and school site leaders to try out new ideas in support of student growth and investment in deeper, more equitable learning.

Mike Matsuda, the superintendent of Anaheim Union High School District has a tenure of cultivating innovation. He explained that such a culture requires:

> Having the courage of districts to trust in teachers to transcend the usual metrics. In the United States, we have 20 years of standardized testing, and a whole generation of teachers and students who know no other way of measuring teaching and learning. And I think that's a big challenge. The fact that we are getting more and more district leaders who are willing to, you know, take the risk and allow teachers to teach and to innovate...[2]

He went on to describe the positive shift to honoring student voice and agency as alternative outcomes to testing metrics, describing the prerequisite context of identity-affirming spaces and classrooms. Students across the district engage in TED Talk style speeches during the year; in order to develop that authentic student voice, the school must "have classroom environments that are safe for identity affirmation." Mike continued to explain how a student "TED Talk starts with my story, who am I? This is *my* issue. This is what I study, and that is hopefully leading to a sense of having a purpose and a calling and action and civic engagement." These concepts are at the heart of the curricular approach in Anaheim, which can be seen in the creation of student Capstone projects, career pathway programs, and a partnership with Google that trains teachers to credential students in marketable technology skills prior to graduation. Such a partnership enables students to have options when they graduate from high school, as opposed to being led down a single path.

Mark Pearmain, Surrey's superintendent, proffered similar thoughts in regard to the importance of demonstrating a commitment to creating safe spaces for student and staff identity as a context for leading and learning. In addition to the province's uptaking of the First People's Principles of Learning, the district has worked to develop an anti-racism approach:

> We're in the midst of training 108 diverse staff, from office staff to principals to teachers, to take that leadership role on when it comes to facilitating difficult conversations within our schools, both for students, but also for staff. And, so, as we talk about teaching the whole child, I reflect about how it's also teaching the whole adult, and we can't lose that ultimately.

This notion of the parallels between the whole adult and whole child came up in conversations across both districts, with recognition that what we practice with students ought to be practiced with adults. Surrey is piloting a teacher wellbeing

[2] This quote and all following quotes are from focus groups and interviews conducted from March through May 2022.

survey to inform structures and supports. They also carve space during the school day for teachers to engage with one another on topics outside of professional development ranging from gardening to dance during Lunch N' Learns. In the Anaheim, site leaders reflected on a district-wide mindfulness program; one teacher explained how:

> Our district does invest in the whole teacher as well. So we can't, as teachers, you can't do a whole child if you don't have a whole teacher, right. There are aspects that our district does that help develop support for the whole teacher, so from mindfulness training for themselves, but also for the classrooms.

A sizable component of how each district honors the whole teacher is through providing the respect, space, and trust for teachers to be the experts of their own classrooms and collaborative leaders in school-site decision making. A site leader in Surrey shared:

> It is about culture. I think there's a level of trust on the staff. There's trust that we don't have some hidden agenda as an administrative team, that we're going to force things on staff and then they have to live with them. So, the process is always quite collaborative. We don't really do anything where we say, this is what we're going to do. We always say, here's an idea, or the ideas come from the classroom up—one or the other.

It is this kind of collaborative decision-making that led to the implementation of an integrative ninth grade curriculum wherein English, drama (or dance or art), and social studies teachers co-teach blocks, and science, math, and physical education teachers also co-teach. This program was able to take shape because the credit requirements for higher education institutions did not go into effect until grade ten, allowing more flexibility and creativity in developing an interdisciplinary curriculum and learning experience. Teachers noted that this approach to teaching enables deeper connections between teachers and students and amongst students. While this innovative program worked well for the humanities team, the STEM team did not adopt the program as easily, ultimately leading to their return to a more traditional curriculum. This experience denotes the fluidity of innovation within the district. Stefan explained the culture using the mantra: "We'll try things and if they don't work, we'll put it back." This can be seen with the freedom granted to individual teachers as well. A Surrey teacher explained how she shared an idea with her principal at the time:

> I was teaching, when we still had provincial exams, a grade eleven course with a provincial exam and those marks matter. And I was like, I'm gonna do this gradeless, is that okay? And he [said], Sure, what's the worst that's gonna happen? It was like...instead of [saying] here's all the things that could go wrong, or here's all the reasons why it might impact your provincial exam results, because I was pretty good at that, it was okay, good, try, report back.

This teacher felt empowered to ask to try an innovative approach in the classroom and was received with the trust and openness to do so from her site lead. Another teacher added that there were "many other times where [innovation] was teacher driven: teachers or committees made plans, approached admin for support (moral or financial) and tried something out." This kind of exchange is representative of the broader enabling culture of innovation incubated at the district level in both Surrey and Anaheim. Teachers do not feel caged in by the need to follow strict curricular mandates and are instead empowered to honor their students' unique needs and interests with culturally relevant approaches and creative interdisciplinary projects. Mark summarized the role of the district:

> We can create space and all of that, but I think at the senior level and district level, we also need to create the expectation for innovation. And that ultimately, if it's known across our system, from our system leaders, to our principals, from our principals, to our teachers, our educational assistants, that the expectation is to be looking for new ways and innovative ways to do things for our kids. That will also reinforce the culture that we want, which ultimately becomes baked into the ethos of the district regardless of who actually is in the seat in the senior leadership role.

Established district cultures of enabling innovation prompt teachers to explore new ideas in their classrooms and school communities. The expectation of innovation empowers teachers to try out a student-centered approach (and see if it works) without fear of harsh evaluation or other punitive measures. From TED Talk speeches to interdisciplinary co-taught classes to gradeless feedback, teachers in Surrey and Anaheim classrooms are taking important liberties in their practice and stepping into their leadership power in support of whole child education.

Collaborative Leadership and Collective Efficacy Amongst Teachers

Teachers in Surrey and Anaheim are not leading alone. They are developing agency and efficacy, the same concepts they work so hard to cultivate in their students, in community with one another. While much of the teacher leadership exhibited within the districts is non-positional and enabled through structures and systems, there are two important coaching positions that encourage teachers to formally step into leadership roles. In Anaheim, these teacher leaders are still teaching multiple periods a day. However, they have release periods to work with their peers on whatever they may need support with, from lesson planning to cadence to setting up a learning walk (a tour and debriefing of an innovative or high-functioning classroom either at or outside of the school site). These "5C Coaches" also work with new teachers to the school and/or district, helping them integrate the 21st-century skill-oriented values into their planning and classroom practice. They guide new teachers to make plans more collaborative, creative, and student-centered. The 5C Coaches were clear that their work with teachers is "non-evaluative" and "more metacognitive," referring to meetings as "collaborative brainstorming sessions." Moreover, they reflected on the opportunity to coach as an "act of compassion," noting that supporting others brings joy. One Anaheim coach explained the central role in building collaborative leadership both within his school site and across the district, noting the importance of such collaboration in teaching to the whole child:

> There is no way I can bring about the change that is needed, even on my own site, much less the entire district. So what I got to do is empower others, look at promising practices, strengthen emerging leaders... because this work of supporting the whole child cannot be done in a silo, we must do it together. I can't do it by myself. I'm just one person in a team. But one thing I can do is bring people together because I have that time stewarded to support.

A theme that came up in conversation with coaches from both districts is the importance of relationship building. Just as teachers are encouraged to develop strong relationships with their students, coaches are selected, in part, based on relational capital and exhibiting a high emotional intelligence. A coach from Surrey shared how her approach to leadership is to stand aside and "to facilitate relationships, small group relationships, individual relationships, and then whole group relationships. And that's been a big focus for me, finding creative ways to build relationships between teachers, and I feel like the success we have had in the last four years since I've been in this role has been built on that."

A coach in Anaheim echoed the sentiment, noting that "we are all about relationships with teachers." He went on to explain the collaborative nature of his work, sharing how the teachers he supports actually "don't call it a collaboration, they call it *corroboration*. Putting people in contact with one another, building that trust." This shift in language parallels the call for building collective efficacy over autonomy. Teachers are supporting one another to develop confidence in their ideas and their capacity to innovate in their classrooms in pursuit of supporting the whole child. Positional teacher leadership in both districts serves to empower other teachers to acknowledge and build upon their existing strengths "to reach their full capacity." This work cannot be done alone, and it cannot be done in a silo.

The key difference between teacher coaches in Anaheim and Surrey is that coaches in Surrey sit at the district level, although they still consider themselves teachers and not administrators. They only support teachers if a teacher reaches out for guidance or for a thought partner—they do not come into the classroom to help "struggling teachers" or to evaluate, even if requested by a site administrator. Similar to coaches in Anaheim, they work alongside teachers to elevate individual strengths and empower, identifying their role in flattening leadership structures along the way:

> I really value how we can use this as a practice to kind of break down a hierarchy and make leadership more horizontal. And what I mean by that is really taking a personalized approach to how we view leadership and how we develop people...and that's what I hope to do through mentorship...see the uniqueness, see the strength that each person has and be very intentional about giving each person the opportunity they might need to be able to grow and continue to learn.

Coaches in Surrey, like their peers in Anaheim, work to bring teachers together to share expertise and cultivate innovation. An example was shared where a group of teachers were particularly skilled in outdoor teaching and learning. They were asked to develop recorded workshops and provided release time to do so. Teachers and staff across the district were then able to gather at lunchtime to watch the workshops and discuss implementation at their own school sites. Anaheim coaches also noted examples of inviting teacher leaders to run workshops and professional development for their peers as a method of sharing their expertise and engaging in collaborative innovation. Their annual Educational Summit, which congregates all teachers from the district at a single school site to support and learn from one another is so valued that teachers implored the district and 5C Coaches to make it happen virtually during the pandemic.

Aside from formal teacher leadership through the role of coaching, teacher leaders collaborate and generate collective efficacy through other key systems. In Surrey, 4% of the budget is set aside for highly qualified substitutes to enable teachers to take release time for development and collaboration. At one school site, 160 total release days were allotted, so that each department could get up to 15 release days to use. Teachers can take this time as needed, with only a one or two sentence explanation of their intended use. Teachers noted taking release time to co-plan around province-wide core competencies, develop programming for ELL assessment and 'Human Performance,' and collaborate on 'thinking classrooms.' Teachers are also entitled and encouraged to take individual release days as needed, pointing again to the trust held in teachers from the district and site level—trust that begets efficacy. A teacher shared about the importance of these release days, in addition to other informal teacher-led collaborative spaces:

> The science department is really good at, about once a month, taking a release day to... work on something and talk about something [that] could be really simple. Like we read the same book at the same time - *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* - and to take a day to talk about it and work through it. And then it just gives you that breathing room to hear about what other people are doing. We also have a lot of... informal...initiatives [like] meetings throughout the year, probably too many... But we are a pilot school for going gradeless and using proficiency scale instead of letter grades. And we have a group of teachers who gather once a month or so and talk about that at lunch. But no one's in charge of that officially. And it's just like we hang out and talk about it. And that's also when the admin joins us and mostly listens.

The significance of such informal collaborative spaces was also noted by teachers in Anaheim. One teacher likened sharing teaching strategies to collaborative approaches from the Wordle community:

> Do you play Wordle? So those of us who play Wordle, well we are kind of our own unique community. We talk about strategy all the time. Once you find out someone plays you always ask about 'what was your first word'...and you always want to share your first word...We learn from each other very informally.... No one is afraid to share their strategy because it is not high stakes. We need to bring the Wordle strategy/sharing to the teaching profession. Now what we need is the time and space to have the informal conversations and the exchanges that are not super structured – because that is how the instigation begins.

This same teacher referred to teacher leaders as *instigators* in the sense that they often sow the seeds for innovation and necessary change within the school or district. The relationship to the role of teacher as instigator further demonstrates the enabling culture of innovation at the district level discussed above.

While formal structures, such as the coaching models in both districts and release time in Surrey, offer examples of ways to facilitate collaborative leadership and collective efficacy amongst teachers, there is also a call for structures that support informal collaboration and practice sharing. Release days speak to meeting this need, as do online communities of practice developed during the pandemic in both districts. However, there is an opportunity for further development of structures that enable informal collaborative leadership.

The Role of University–Community School Partnerships

While there is unrecognized potential and opportunity in each district to further collaborate with local universities in pursuit of teaching to the whole child, there are a few notable examples of strong university-community school partnerships. Both districts work with a limited and focused number of local universities, which enables more strategic planning for teacher and administrative preparation and ongoing development for whole child education. In Anaheim, for example, there is a select cohort of teachers going through an administrative credentialing process with California State University - Fullerton (CSU-F) that was developed with the district. The program is co-taught by CSU-F faculty members and district leaders, which supports teachers in developing a particular skill set that both the university and district think are of value. One teacher leader characterized the program as "more than...a robotic admin credential [because] it is custom tailored to our district. So it is starting with us, right, the teachers. They are investing a lot of time and energy with us as teachers, so that we can invest a lot of time and energy with our students." Anaheim has also leveraged grant funding to partner with UC Irvine to (1) study and develop evidence of key best practices in their career-oriented schooling framework, and (2) engage students, families, and teachers' voices in continuously improving and redesigning these programs to better serve their needs. Surrey works closely with Simon Fraser University (SFU) and University of British Columbia. Their partnership with SFU has led to several student transition programs from high school to university, as well as joint-academic, research and community engagement initiatives to support the whole child.

Teacher leaders in both districts have taken on teaching positions at local universities, primarily within teacher preparation programs. In Anaheim, this was an additional role to their teaching and coaching duties. For some teachers in Surrey, this was also the case. For others, however, they took a secondment—two years 'off' to teach at local universities with student teachers and bring them into the district—with a paid salary and a job waiting for them upon their return. There is also a form of education leave in Surrey, where teachers can take a pay cut for a few years prior to leaving and then have a partial salary while they pursue graduate study. Lastly, both districts mentioned partnership with local universities for school-level programmatic support. For example, local college students support initiatives in Anaheim high schools while high school students in Surrey are able to pursue pathway-esque programs through local universities such as culinary arts, carpentry, CADD drafting, and horticulture.

Considerations and Conclusions

While no two districts or two community schools are alike, there are promising practices to be derived from this dual case study. District administrators play an integral role in developing a culture that enables innovation across schools and within classrooms. Teachers can step into their leadership potential when empowered to innovate—to try, to fail and retry, and to succeed in curating student-centered learning experiences. District leaders support this innovation by enabling teachers to move past the traditional metrics of success and work towards supporting alternative measures such as whole child development, civic engagement, student voice, and agency to solve real-world problems. They also collaboratively develop the vision—with teachers, community partners, and university partners—of expecting innovation. Administrators reflected throughout the case study on the reality that roughly 15-20% of their teachers routinely approach their work with an innovative mindset; there is more to be done to engage the remaining population of teachers in this work. Peer coaches and collaborative opportunities were seen as two ways to catalyze this shift.

Time and space need to be carved out of the regular school day schedule for teachers to collaborate with one another on topics important to them and their practice; this cannot simply be an additional task for teachers. Teacher leaders can empower one another to identify and cultivate unique strengths and talents, encouraging each other to share expertise in professional development and other collaborative learning spaces. Learning and leading go hand-in-hand. What is shared with colleagues does not need to be a fully fleshed-out idea or plan, it can be a work in progress. Teacher leaders support one another in innovative exploration, encouraging the process of trying, reflecting, and growing.

The use of an iterative and collaborative qualitative approach to our research study contributed to both authenticity and depth of findings. Participants—district administrators, school site administrators, coaches, and teacher leaders—worked alongside researchers to craft the narrative that encapsulated their perspectives on struggles and wins within the classroom and district writ large. This type of research finds a fitting home in the community school setting, drawing on the core component of collaborative leadership and practices to elevate teacher expertise to the broader education research and practice community.

Both Surrey and Anaheim provide inspiring examples of how to develop systems of teacher leadership for whole child education in community school settings. They create the conditions for teachers to safely grow and thrive, just as teachers create these conditions for students. Both districts have built and maintained foundations of trust and respect that empower teachers to lead, to innovate, and to encourage their peers to join in on the process.

References

California Department of Education. (2022a). 2021-22 California Community Schools Partnership Program Implementation Grant-Cohort 1, Appendix C: California Community Schools Framework. Retrieved from https://www.cde.ca.gov/fg/fo/r17/documents/ccsppimprfaupdt.docx.

California Department of Education (2022b). LCFF Priorities/ Whole Child Resource Map. Retrieved from https://www.cde.ca.gov/eo/in/lcff1sys-resources.asp.

Cantor, P., Osher, D., Berg, J., Steyer, L., & Rose, T. (2018). Malleability, plasticity, and individuality: How children learn and develop in context. Applied Developmental Science, 23(4), 301–337;

Coburn, C. E., Penuel, W. R. & Geil, K. (2013). *Research-practice partnerships: A Strategy for leveraging research for educational improvement in school districts.* New York; NY. William T. Grant Foundation.

Community Schools Forward. (2023). *Framework: Essentials for community school transformation.* https://learningpolicyinstitute.org/project/community-schools-forward

Creswell, J. W. & Poth, C. N. (2018). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches, Fourth Edition*. Sage Publishing.

Darling-Hammond, L., & Cook-Harvey, C. M. (2018). Educating the whole child: Improving school climate to support student success. Learning Policy Institute.

Fensterwald, J. & Xie, Y. (2022). California's new budget includes historic funding for education. EdSource: Highlighting Strategies for Student Success. Retrieved from https://edsource.org/2022/californias-new-budget-includes-historic-funding-for-education/674998.

Finn, T. (2007). A Guide for Monitoring and Evaluating Population-Health-Environment Programs. USAID and MEASURE Evaluation.

Galindo, C. L. & Sanders, M. G. (2021) Teachers' academic optimism and professional practice in an urban full-service community high school. *Journal of Educational Change*. Retrieved from https://doi.org/10.1007/s10833-021-09430-6.

Hennessey, B. A. (2015). If I were Secretary of Education: A focus on intrinsic motivation and creativity in the classroom. *Psychology of Aesthetics, Creativity, and the Arts*, 9 (2), 187–192. https://doi.org/10.1037/aca0000012

Quartz, K. H., Daniel, J. & Maier, A. (2020). Classroom Teachers in the Community School Movement: A Social Justice Perspective. American Federation of Teachers. Retrieved from https://www.aft.org/ae/spring2020/quartz_daniel_maier.

Kantor, H., & Lowe, R. (2016). Educationalizing the welfare state and privatizing education: The evolution of social policy since the New Deal. In W. J. Mathis & T. M. Trujillo (Eds.), *Learning from the federal market–based reforms: Lessons for ESSA* (pp. 37–59). Charlotte, NC: Information Age.

Klein, A. (2015). No Child Left Behind: An Overview. Education Week. Retrieved from https://www.edweek.org/policy-politics/no-child-left-behind-an-overview/2015/04 .

Learning Policy Institute & Turnaround for Children. (2021). Design principles for schools: Putting the science of learning and development into action. Retrieved from https://k12.designprinciples.org/sites/default/files/SoLD_Design_Principles_REPORT.pdf .

Little., S. & Garcha, N. (2022). B.C. to make Indigenous-focused coursework a high school graduation requirement. Global News. Retrieved from https://globalnews.ca/news/8661463/bc-indigenous-graduation-requirement/.

Maier, A., Daniel, J., Oakes, J., & Lam, L. (2017). Community schools as an effective school improvement strategy: A review of the evidence. Learning Policy Institute.

McLaughlin, M. W. (1992). How District Communities Do and Do Not Foster Teacher Pride. ASCD. *Building a Community for Learning.* (50) 1.

Mehta, J., & Fine, S. (2019). *In search of deeper learning: The quest to remake the American high school.* Harvard University Press.

Mineo, L. (2020). Time to fix American education with race-for-space resolve. The Harvard Gazette. Retrieved from https://news.harvard.edu/gazette/story/2020/04/the-pandemics-impact-on-education/.

Osher, D., Cantor, P., Berg, J., Steyer, L., & Rose, T. (2020). Drivers of human development: How relationships and context shape learning and development. Applied Developmental Science, 24(1), 6–36.

Robinson, K. (2010, October). Changing education paradigms [Video]. Ted Talk. https://www.ted.com/talks/sir_ken_robinson_changing_education_paradigms

Saldaña, J. (2013). *The Coding Manual for Qualitative Researchers. Second Edition.* Sage Publications.

Sanders, M., Galindo, C., & Allen, K. M. (2018). Professional capital and responses to student diversity: A qualitative exploration of the role of teachers in full-service community schools. *Urban Education.* Advance online publication. doi:10.1177/0042085918770719.

Saunders, M., Martínez, L., Flook, L., & Hernández, L. E. (2021). Social Justice Humanitas Academy: A community school approach to whole child education. Learning Policy Institute.

Sizer, T. R. (1984). *Horace's compromise: the dilemma of the American high school.* Houghton Mifflin Company.

The Aspen Institute. (2018). From a Nation at Risk To a Nation at Hope: Recommendations from the National Commission on Social, Emotional, & Academic Development. Retrieved from http://nationathope.org/report-from-the-nation/.

UCLA Center for Community Schooling. (2022). Our Approach. Regents of California. Retrieved from https://communityschooling.gseis.ucla.edu/research-2/.

Winthrop, R. and Vegas, E. (2020). Beyond reopening schools: how education can emerge stronger than before COVID-19. Brookings Institute. Retrieved from https://www.brookings.edu/research/beyond-reopening-schools-how-education-can-emerge-stronger-than-before-covid-19/.

Yoder, N. (2014). Teaching the Whole Child: Instructional Practices That Support Social-Emotional Learning in Three Teacher Evaluation Frameworks. Research to Practice Brief. Center on Great Teachers & Leaders at American Institutes for Research. Retrieved from https://gtlcenter.org/sites/default/files/TeachingtheWholeChild.pdf.

Engaging Rural Youth in Multidisciplinary Inquiry through Archaeology: A University-Assisted Community School Approach in Action

Jada McCann, *Binghamton University – SUNY*
Kara Jonas, *Binghamton University – SUNY*
Amber Simpson, PhD, *Binghamton University – SUNY*
Laurie E. Miroff, PhD, *Binghamton University – SUNY*
Naorah Rimkunas, PhD, *Binghamton University – SUNY*
Nina M. Versaggi PhD, RPA, *Binghamton University – SUNY*
Luann Kida MA, LMSW, *Binghamton University - SUNY*

Jada McCann is an Undergraduate Student studying English at Binghamton University – SUNY.

Kara Jonas is a Doctoral Student in the Department of Anthropology at Binghamton University – SUNY.

Amber Simpson is an Associate Professor of Mathematics Education at Binghamton University. Her research interests include (1) examining individuals' identity(ies) in one or more STEM disciplines, (2) understanding the role of making and tinkering in formal and informal learning environments, and (3) investigating family engagement in and interactions around STEM-related activities.

Laurie Miroff, PhD, RPA is the Director of the Public Archaeology Facility, an Organized Research Center at Binghamton University. Her research interests include community organization of the people who lived during the precontact period in the Susquehanna and Chemung drainages, the conduct of Cultural Resource Management in the Northeastern US, and public outreach and archaeology.

Naorah Rimkunas, PhD, is Assistant Professor of Community Schools in the College of Community and Public Affairs at Binghamton University. She also directs the University-assisted Community Schools Regional Training Center for New York and New Jersey through funding from the Netter Center for Community Partnerships at the University of Pennsylvania.

Nina M. Versaggi, PhD RPA, serves as a Senior Research Associate with the Public Archaeology Facility and Department of Anthropology at Binghamton University. She has spent her entire career as a specialist in historic preservation and cultural resource management. Her current research focuses on community archaeology and working with Indigenous peoples on community projects.

Luann Kida, MA, LMSW, Executive Director, Binghamton University Community Schools is a social worker with 20 years' experience working in elementary through post-secondary education. She has spent her entire social work career serving marginalized and disenfranchised populations in their quest for education.

Abstract

Afterschool programs for youth play an important role in stimulating a sustained interest in STEM fields (science, technology, engineering, math). While there is a demonstrated need for such informal education programs, implementing them can be challenging due to limited staffing, funding, and operational costs. University-Assisted Community Schools (UACS) initiatives offer established partnerships, support networks, and opportunities to provide informal education experiences for youth. Binghamton University's Community Schools (BUCS) is a well-established UACS initiative where families and children receive coordinated support and college students gain experiences outside the formal classroom. Using its UACS approach, BUCS joined with the Public Archaeology Facility (PAF), a research center on the Binghamton University campus, and faculty in the Department of Teaching, Learning and Educational Leadership (TLEL) to support a National Science Foundation's Advancing Informal STEM Learning (AISL) grant that funded a project entitled, *Engaging Rural Youth in Multidisciplinary Inquiry through Archaeology*. The resultant program offers a model for other communities to develop similar afterschool programs, providing youth with informal learning opportunities in STEM disciplines. The grant advanced an innovative approach to teaching STEM to youth in rural school districts using modules based on scientific concepts used in archaeology supplemented by Indigenous knowledge. This article describes the partnerships, the research aims of the program, the archaeological/Indigenous modules, and research insights and includes a graduate student's reflections on identity and the process of becoming an informal educator, mentor, and colleague. These discussions illustrate the development, implementation, and refinement of an archaeological afterschool program that supports youth, undergraduate and graduate students, and professional archaeologists as multidisciplinary STEM learners.

Introduction

Previous research suggests that interest and engagement in STEM (science, technology, engineering, math) can be triggered at a young age, and informal learning experiences play a role in stimulating this interest (Maltese et al., 2014; Maltese & Harsh, 2015). Afterschool programs are an important avenue for providing informal experiences for adolescents to engage with STEM concepts, practices, and skills. However, there are challenges in implementing such programs in rural areas including lack of access to reliable transportation, limited funding, and lack of community partnerships to sustain programs (Collins et al., 2008; Joyce et al., 2014). In this paper, we highlight a current partnership between a Binghamton University (BU) archaeological research center, a University-Assisted Community Schools (UACS) program, university-based educational researchers, and three local rural school districts in implementing a novel afterschool program focused on supporting middle school youths' participation as STEM learners using concepts embedded in the practice of archaeology. The objective of our partnership was to develop, implement, and refine an archaeological afterschool program to support and engage youth, undergraduate and graduate students, and professional archaeologists as multidisciplinary STEM learners. We contend that this partnership offers a model for collaborations with professional archaeologists in other communities to develop similar afterschool programs and provide school districts with much needed informal learning opportunities, particularly in STEM disciplines. Such partnerships also have the potential to advance a growing specialization in the field of archaeology — community engagement — which is grounded in the principle of providing a public benefit from archaeological research.

The National Historic Preservation Act of 1966 (NHPA) introduced the concept of "the public benefit" of preservation and outlined a community consultation process. The 1990 Native American Graves Protection and Repatriation Act (NAGPRA) required the highest levels of outreach and consultation with descendant communities and their representatives. Simultaneously, Black epistemologies (e.g., Blakey, 2008, 2010; Franklin et al., 2020; McDavid, 2011; Singleton, 1997), Indigenous thought (e.g., Atalay, 2012, 2019; Colwell-Chanthaphonh & Ferguson, 2008; Gonzalez & Edwards, 2020), and feminist theory (e.g., Battle-Baptiste, 2011) encourage archaeologists to incorporate various levels of community engagement in their work. A growing contingent of researchers is incorporating and centering a variety of community engaged practices in their research, ranging from public outreach and education to direct collaboration with stakeholder

communities. BU's research team and the UACS initiative provided a unique partnership for assisting local middle school districts with an informal program to enhance STEM education using applied archaeological learning modules.

University-Assisted Community School Approach at Binghamton University

Binghamton University Community Schools (BUCS) is a multipronged initiative that leads local, statewide, and national efforts to implement partnerships between higher education, schools, and communities. BUCS launched in 2014 after many years of engagement between BU and local health and social services organizations and schools. The program maximizes the resources of the university to enhance student learning (for both college students and pre-kindergarten to high school students), faculty research, and community-engaged learning opportunities. As a strategy, community schools are an economically viable way to reduce the negative influence of poverty on children's ability to thrive (Bronstein et al., 2020; Williams, 2010). When universities engage as partners with community schools, they can simultaneously advance university research, teaching, learning, and service, while serving as lead partners to provide long-term engagement of faculty, staff, students, and institutional resources with the school. BUCS utilizes this strategy to implement a University-Assisted Community Schools (UACS) model in the rural communities, towns, and small cities that make up Broome County, New York.

Central to the mission of BUCS is the tenet that the partnership between higher education and schools is a mutually beneficial one, where families and children receive an array of coordinated support, and college students gain rich experiences not typically available in a formal classroom (Bronstein et al., 2020). This is facilitated in part by a notable partnership between BUCS and the Division of Student Affairs' Center for Civic Engagement, which helps to facilitate much of the student engagement in the local community schools.

The primary work of BUCS is carried out in three domains. First, local implementation of the UACS model is accomplished through the BUCS Regional Network. The Network brings together community school coordinators from nine school districts within Broome County for professional development, opportunities to connect with community partners, and network-building activities. Second, faculty and students from across disciplines engage in area community schools through applied research, clinically rich internship placements, and volunteer opportunities. Examples include research around financial literacy (Dzigbede & Young, 2019), interprofessional education for social work, education, and nursing students to address the needs of marginalized families in community schools (Lee et al., 2017), and a full-service community school grant through the U.S. Department of Education that has expanded community schools to two rural school districts in Broome County led by faculty in the College of Community and Public Affairs. Third, through funding from the New York State Education Department and the Netter Center for Community Partnerships at the University of Pennsylvania, BUCS provides technical assistance for community school strategies in higher education in New York and New Jersey, as well as school districts, community and faith-based partners, and afterschool programs throughout New York State. BUCS provides technical assistance through universal and individualized support via communities of practice, webinars, toolkits, one-to-one consultation, and regional events.

Along with these elements, BUCS also co-creates coursework and credentialing about community schools in collaboration with the Departments of Teaching, Learning and Educational Leadership (TLEL) and Social Work, and has formed critical partnerships that span multiple disciplines across the university, including the Decker School of Nursing and Health Sciences and the Masters of Public Health. Additionally, BUCS contributes to the national agenda around community schools through its partnerships, advocacy work, and evaluation efforts.

The local implementation of community schools and the faculty engagement elements of BUCS provided a platform for a partnership between BUCS, TLEL, and the faculty partners associated with BU's Public Archaeology Facility (PAF). This

team submitted a successful application for a National Science Foundation (NSF) Advancing Informal STEM Learning (AISL) grant designed to bring an afterschool program to three rural school districts using archaeology concepts to teach STEM components. This grant offers BU students opportunities to work with faculty and implement learning programs for middle school students, providing expanded learning opportunities for these youth, as well as valuable teaching and engagement skill-building for our university student participants. For graduate student participants, this skill-building advances their preparation for careers in community engagement, an expanding field within archaeology.

Community Outreach and the Public Archaeology Facility

The NSF AISL program awarded the BU team of researchers and educators a two-year grant in 2020. Team members began planning during the Covid-19 pandemic and ran the first in-person afterschool program in spring 2021. The program benefited from the successful relationships that BUCS personnel had established with rural schools, which facilitated the launch and delivery of the afterschool program. PAF's longstanding community outreach mission, particularly with school-aged participants, fits well with the mission of BUCS (Bronstein et al., 2020).

PAF is a research center on the BU campus that provides specialized archaeological services to clients throughout the Northeastern United States.[1] These services fall within a branch of archaeology known as cultural resource management (CRM), which operates within the context of historic preservation and public archaeology. Since PAF's establishment in 1972, community outreach and engagement have become an increasingly important part of its mission (Miroff & Versaggi, 2020; Versaggi, 2007). PAF archaeologists are committed, both personally and professionally, to engaging various community constituencies in the research they conduct. For instance, staff respond to requests for programs on archaeology and local precontact history to enhance school curricula. PAF provides speakers for community events, such as Career Days, First Fridays, and Heritage Walks. They also invite community and school groups to tour the lab facilities and, when feasible, visit ongoing excavations. In 1996, a core group of PAF archaeologists designed and implemented a summer enrichment program in response to increasing requests for ways community members could be more involved in archaeological research.[2] The Community Archaeology Program (CAP) includes three week-long sessions: Kids (grades 5 and 6), Teens (grades 7-10), and Adults (ages 16 and over). All three programs provide hands-on experiences in the classroom, field, and lab.

The success of these summer programs prompted CAP instructors to search for additional ways archaeology could contribute to schools and communities using the CAP model. PAF entered into conversations with TLEL and BUCS to see if CAP could enhance learning experiences for students in local schools through their community school initiatives. These discussions encouraged us to develop and test archaeological activities that could be used to fulfill a community need for informal afterschool programs focused on teaching STEM concepts. These conversations led to the joint proposal to NSF's AISL Pilot & Feasibility Program. The proposal focused on the overwhelming demand in rural schools for the same informal STEM programs that are available to their nearby urban neighbors. BUCS and others have found that many students in rural areas do not have opportunities to participate in athletics, music, or performing arts outside of school, revealing a high demand for afterschool activities (Snellman et al., 2015; Zaff et al., 2003). By extending CAP's summer program into the academic year and providing a more STEM-focused informal learning experience, we implemented a program that fulfills this critical need.

[1] https://www.binghamton.edu/programs/public-archaeology-facility/index.html
[2] https://www.binghamton.edu/programs/cap/

The Archaeological Afterschool Program

The purpose of the afterschool program was to advance youth knowledge of STEM through informal afterschool sessions based on the science of archaeology. The target audience was middle schoolers (grades 6-8) from rural communities, and the specific focal concepts included life sciences, technology (design and experimentation), physics, mathematics, and ecology. A key goal was to advance STEM learning by having youth formulate hypotheses and collect data from artifacts, activities, landscapes, and Indigenous knowledge. The data obtained tested hypotheses or fueled replication experiments about how precontact Indigenous people designed and used tools, acquired and prepared food, communicated without writing, practiced sustainable land use patterns, and maintained traditional ways of life into the present.

A central focus of the program was traditional Indigenous knowledge as it relates to science and the environment. A Haudenosaunee Clan Mother, a Faithkeeper (and wampum maker), and a storyteller from the Onondaga Nation presented to the learners, supplementing archaeological concepts. Lessons included a performance by the storyteller, a cordage making demonstration and hands-on activity, and the recitation of the Thanksgiving Address in the Onondaga language. Their focus was Indigenous perspectives on the time depth of their relationship with elements of nature, and the need to treat the environment and all organisms within it with respect in order to sustain the practice of their traditional ways of life.

Archaeologists and their student assistants implemented the afterschool program twice in three rural middle schools in Broome County, New York. Each program involved two hours of informal activities per week for 10 weeks. Enrollments ranged from 10-20 youth per session. BU undergraduate and graduate students served as program assistants supporting both the middle school learners and instructor archaeologists in the classroom.

Each day, different topics in archaeology were presented that highlighted a specific STEM concept. All lessons had a hands-on component that reinforced the STEM concept. Topics and activities included: artifact identification/classification, field surveying, stone tool replication and use, faunal (animal bone) analysis, flora (plant) analysis, cordage making, spear throwing using an atlatl, wampum making (shell beads), landscape analysis, drawing to scale, hypothesis testing, diagnostic artifact typologies, and storytelling (learning about a culture from oral tradition).

An example of a lesson was landscape analysis. For this module, youth learned where people lived on the landscape thousands of years ago and where they acquired subsistence and non-subsistence resources. STEM concepts included spatial analysis, ecology, biology, and geography. This module built on previous lessons that focused on stone tool functions, floral and faunal resources, and traditional ecological knowledge. Instructors guided discussion by asking learners a series of questions:

- What are the various geographical settings (floodplain, terrace, valley wall, upland)?
- How did people use these various settings and what types of archaeological sites did they develop (base camp, village, temporary camp, resource procurement/processing location)?
- What factors beyond the natural environment may have influenced how precontact people selected site locations (e.g., territoriality, protection, religious beliefs, etc.)? How might this increase the difficulty for archaeologists attempting to predict where Indigenous people settled in the past?

Instructors provided topographic maps with the school's location and discussed how to read these maps and where on the map the learners would expect to find particular site types (hunting camp, fishing camp, village, etc.). Learners then went outside to view the landforms that they identified on their topo maps (e.g., floodplain, hilltop, wetlands, creek) and decided if they still thought those landforms would have been advantageous for settlement, growing crops, hunting, fishing, or other functions. They answered questions about their "site" in ArcGIS Survey123 and plotted the sites on an interactive map.

[1] https://learningpolicyinstitute.org/sites/default/files/product-files/Community_Schools_Effective_INFOGRAPHIC.pdf

These data were downloaded and a map with all their "sites" was produced. As a group, we then analyzed the landscape that housed these various "sites."

A universally favorite activity was learning to throw a "spear" (dart) with an atlatl (wooden spear throwing device). This lesson was done in conjunction with an exercise in hypothesis testing. Archaeologists introduced youth to an ancient piece of technology (a spear thrower), and the physics behind it (leverage/levers, laws of motion, etc.). Based on this, learners developed a simple hypothesis (e.g., a dart can be thrown farther with a spear thrower; or a dart can be thrown farther by hand). Learners developed methods to test their hypothesis: Will all individuals throw? How many times? Will only the farthest throw be recorded? Once they completed the experiment, learners examined the data to see if their hypothesis was supported by the data collected. If it was not, the learners, guided by the educators, discussed if there were parameters that affected the testing (e.g., wind, temperature, inexperience), or whether the hypothesis should be revised using different variables. Youth then decided how to test the new hypothesis with experiments using the new set of variables or in different weather conditions.

Around week six, learners formed groups and began their selected research project or experiment; they worked on the project at least one day a week for the remainder of the program. The end product was a printed poster created in Google Slides or a Google Slides presentation. Experiments included testing what type of tool (stone, bone, wood) cuts a root vegetable better; what method is best for making cordage and how much weight can it support; and what variables make an atlatl more effective for distance throwing (e.g., type of atlatl, person's height, dart length, person's arm length). The program concluded with a capstone event at which learners presented their projects to teachers, school staff, and their families similar to a professional conference poster session. Through these projects, youth learned an important STEM process – devising hypotheses, creating ways to test hypotheses, interpreting and presenting results, and working in teams where tasks are divided among the team members while all work to achieve a product.

The archaeological afterschool program contributed to a UACS initiative by filling an educational need for informal STEM programs for students in rural areas. Through novel hands-on activities, learners engaged with STEM concepts through archaeology. This pilot program provided educational researchers with data to assess program goals regarding how archaeological activities contribute to building a STEM identity for participating youth, and pedological advancement for the undergraduate and graduate student assistants. These will be discussed in the following sections.

Research Insights

As part of this program, we examined how the development and implementation of the program supported and engaged youth (i.e., middle school learners) in STEM learning and identity development as a STEM person. In this context, we define a STEM person as an individual who engages with STEM concepts and processes, such as hypothesizing through observation, or using principles of physics to throw a spear using an atlatl. The first aim was to understand the ways in which BU graduate and undergraduate students supported youth participation as STEM learners. The second aim was to identify ways in which a middle school student's participation in an informal STEM program shaped and shifted their identity as a STEM person.

Aim 1: Ways in which BU graduate and undergraduate students supported youth participation as STEM learners.

To study this aim, the research team utilized information collected through field notes or observations, and written reflections from the BU students themselves. Observations focused on the actions, dialogue, and interactions between the youth and the educators (including BU students), and among the youth themselves. Once the program concluded for the day, each observation was added to a two-column Google document where the research team explained our observations in

greater detail. See Figure 1 for a snapshot example of the research team's field notes when learners sorted projectile points into types based on their observations.

In-Program Observations	After-Program Explanations
Educators introduced learners to the official New York State artifact typology book that archaeologists use in the field.	Educators introduced learners to the official New York State artifact typology book that archaeologists use in the field. By introducing this book to learners, they are seeing first-hand how the activities they are doing in the program are related to real-life archaeology.
Quotes from university students to middle school students: (a) "Do you notice that kind of indent on any other ones?" (b) "This is an interesting shape. What do you think it could have been used for?" (c) "Explain how you determined how to sort your projectile points." Quotes from educator to middle school students: (a) "Make types, make categories, and make sure you can explain why you put them there." (b) "You had broad categories and divided them up even farther." (c) "Try to find its side." (d) "Do you think you can break them down even farther? Maybe based on shape and width?"	BU students and educators encouraged youth to dive deeper into their typologies, providing comments and praise along the way. They let learners find their own way, and mostly allowed them to create typologies on their own. As these quotes highlight, middle schoolers were engaged as scientists as they communicated about their sorting and were challenged to consider other ways to observe the same "data."

Figure 1: Example of two-column observation field notes

The left column, entitled "in-program observations," included the actions, dialogue, or interactions we observed each week during the duration of the 10-week program. The right column, entitled "after-program explanations," corresponded with and elaborated the observation on the left. Along with the observations, BU students were asked to complete a written reflection each week where they detailed their experiences, observations, and overall feelings about the program in response to a set of questions that were subject to change. After each BU student submitted their reflections, direct responses were placed in an Excel spreadsheet where the research team created analytical memos to extract meaning from the data (Birks et al., 2008). Based on the field notes from each school site and the written reflections submitted by each BU student, the research team was able to focus on how this program supported the middle school students' participation as STEM learners. With this information, we drew connections between what we observed and what the BU student noted in their reflections.

In conjunction with the BU students, the archaeology afterschool program created an environment where youth could gain, as well as expand upon, their STEM knowledge. Based on the data collected, we identified two prominent methods that the educators of the archaeology afterschool program and/or BU students utilized to facilitate adolescents' participation as STEM learners. These methods included establishing rapport with the learners and asking them multiple types of questions.

Establishing rapport with the middle school learners

Many of the BU students stated in their written reflections that they felt that creating a safe and comforting environment was key to getting the middle school students to participate in the activities more and more each week. The first, and perhaps the most obvious, involved getting to know the youth. Many of the BU students took time each week to ask the youth personal questions about themselves. Adina, Mandy and Maxine are exemplars.[3] Mandy noticed a learner wearing a *Marvel* t-shirt. As a *Marvel* fan herself, she asked the learner about their favorite movies as well as their favorite superheroes. After Mandy formed a bond with this learner, the young person began participating more in Mandy's groups. In many instances, they would be the first to try something. This was not a theme just with Mandy. In her written reflection for week three, Adina stated that she "was able to get to know [the students] better," which led to feeling "more comfortable asking [her] questions."

[3] Pseudonyms are used throughout this paper.

The second method was providing continuous encouragement. In their written reflections, some BU students mentioned that a few of the learners were having a difficult time engaging with every activity for a variety of reasons. Many encouraged the adolescents to participate in each activity. For example, Maxine described making a conscious effort to interact with the "lone wolves" of the program — learners who tended to work alone during activities. One specific instance occurred during the mystery box, or hypothesis testing, activity. As observed, Maxine noticed Eric working on the activity alone at one of the tables. Instead of ignoring this, Maxine sat with Eric and they began working on the activity together. In her written reflection for that week, Maxine commented on this interaction, stating that by sitting there and encouraging Eric throughout the activity and asking him questions, she "supported his student growth as a STEM learner." This provided Eric with the opportunity to broaden his engagement in the program. We noticed that subsequently, Eric started to work with his peers throughout the next few weeks following this encounter. When the program reached its conclusion, this "lone wolf" seemed eager to participate in a group, sitting alongside his peers. Moreover, during activities, such as the Pythagorean theorem activity, the BU students repeated phrases such as "We're gonna have fun," as well as "We're gonna do this together." In this setting, the use of the phrase "we're" created the feeling of comradery.

Asking adolescents questions

Along with being a reliable presence during the activities each week, BU students began asking the adolescents different types of questions to increase their STEM participation. These questions were either guided, open-ended, or focused depending on the scenario and the task at hand. During the faunal analysis activity (also referred to as identification of animal remains), Adina would ask the learners in her group questions in an effort to have them "figure out the answer on their own [in order to] draw their own conclusions" based on what they noticed. Another BU student, Rosie, took to asking the learners open-ended questions during the same activity in an attempt to "get them thinking again." Leading questions were used to achieve a desired answer, while open-ended questions were used to stimulate thought. Both methods of questioning allowed for the youth to apply their knowledge to the activity at hand. During the typology activity, learners were asked to "type" (sort) projectile points (the stone tips for spears, arrows, and darts) based on defining characteristics they may have noticed (see Figure 2). First, they were asked to try typing these points on their own; that is, create their own classification system based on their observations. The middle school students typed the points on noticeable traits, such as size, shape, and color. Once all the adolescents completed this task, the BU students and educators were able to ask them about their classification system. From here, the BU students asked the youth questions (e.g., "Do you notice anything else?" "Would you be able to further 'type' these points based on any deformities?") in an effort to have them expand their classifications. With the help of the BU students, the learners were able to further develop their own ideas.

In our observations, we noticed that the learners tended to demand answers when they were feeling overwhelmed with the task at hand. During the faunal analysis activity, for example, the middle school students became frustrated when they could not identify the animal their specific bone matched. Many of them approached the BU students in an attempt to find an easy answer. They demanded that the BU students "tell [them] what it is," as well as "where it's from." Instead of taking the bait, BU students turned the learners' demands into a question. They would request that the learners show them the last collection of bones they observed

Figure 2: Image of middle school learners engaged in typology activity

(e.g., "Well, where did you leave off? Why don't we go from there?"). Next, the BU students would go table-to-table with the learner in question, working together to find the correct match to the bone (see Figure 3). By not giving the learners an answer when they demanded it, and instead working in tandem to identify the bone, the BU students increased the youths' STEM participation. As mentioned earlier, they showed the youth that they do not have to struggle alone. Moreover, the BU students turned frustration with an activity into a process to help the learners think outside their current mindset.

Figure 3: Image of BU student and middle school learner working together

Some of the BU students used their questions as a method to not just challenge the youth, but to get them to challenge themselves. One BU student, Rosie, stated in her written reflection for week one that she used her questions to "encourage [the middle schoolers] to think outside the box." This belief followed Rosie throughout the program. During week four's cordage activity, Rosie asked her students, "Which one would be stronger, the braid or the twist, and why?" She wanted the youth to not only come to their own conclusion, but also formulate possibilities that supported their reasoning. In other words, Rosie tried to get the learners to challenge their own current frame of mind.

Aim 2: Possible ways in which a learner's participation in an informal STEM program can shape and shift their identity as a STEM person.

Researchers used observations (data collection described in Aim 1) and information collected from the learners enrolled in the program to address this aim. At the beginning of the program, the middle school learners were given a booklet (referred to as student booklets) to use to write down their reflections based on their own personal experiences with the activities that day (see Figure 4).


Figure 4: Image of middle school learners' decorated student booklets.

Inside each booklet was a two-sided chart, as well as a place for the learners to write the date, the name of the activity, and their reflection regarding their self-selected identity from a provided list (see Figure 5).[4] One side of the booklet featured 10 "identities" along with corresponding explanations that the learners could choose from once they completed each activity (Mercier & Carlone, 2021). They were then asked to briefly explain why they chose each identity. While they were given brief descriptions of each identity in their booklets, it was possible that they formed their own interpretations of each "identity." It is important to note that the number of participants in activities and reflections varied from week to week as some joined later or left earlier in the semester or were pulled out of the program for sports or other school-sponsored activities.

[4] Definitions for the full list of "identities" can be found at https://tinyurl.com/nvmeam32.

At the end of the program, researchers collected the student booklets for analysis. A spreadsheet was created to count which identity(ies) each learner chose for each activity. Table 1 includes the 10 "identities" along with the counts for five of the 13 activities. We selected five "high" STEM activities for this table to serve as an example. We defined a "high" STEM activity as one in which we felt an outsider could clearly see the use of STEM concepts. In addition, the research team read each of the learners' one to two sentence explanations, looking for quotes that highlighted the reason they chose that particular identity. We then highlighted the top two identities for each activity.

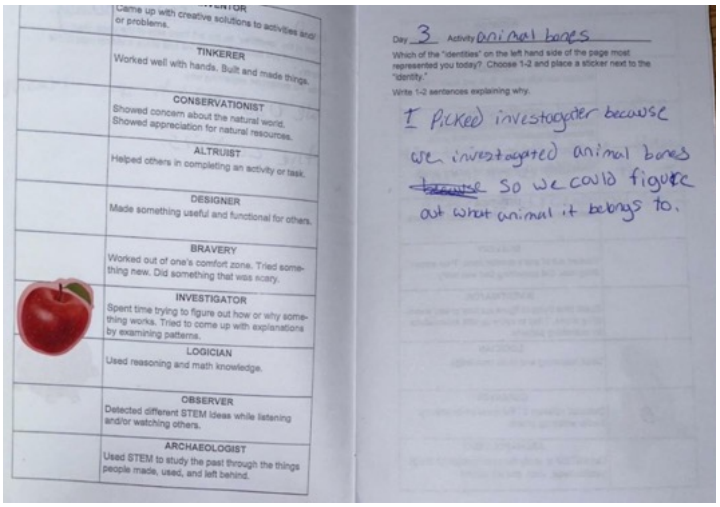


Figure 5: Inside view of student booklet

Identity	"High" STEM Activity				
	Artifact Identification	Excavation Site (Pythagorean Theorem)	Total Station	Faunal analysis	Mystery Boxes (Hypothesis Testing)
Inventor	3	3	2	5	2
Tinkerer	1	11	4	4	4
Conservationist	1	--	1	3	--
Altruist	3	5	7	1	1
Designer	2	4	1	1	1
Bravery	3	1	2	1	1
Investigator	9	1	9	16	9
Logician	4	9	10	--	--
Observer	7	3	6	4	4
Archaeologist	7	--	1	5	--

Table 1: "Identity" Count Per "High" STEM Activity

Investigator

Investigator was one of the highest self-selected identities across all the activities that learners participated in each week. It was also among the identities that had a direct connection to STEM. According to the brief description provided in the student booklets, an investigator is someone who came up with conclusions, or explanations, "by examining patterns" (Mercier & Carlone, 2021, Table 1). Being an investigator means asking questions, as well as formulating conclusions to the questions posed. In the afterschool archaeology program learners participated in many activities that required them to ask their own questions and draw conclusions.

One such activity, referred to as Mystery Boxes (Science Museum Group, n.d.), or Hypothesis Testing, featured six sealed boxes containing six different, unknown items. Middle school students were split into six groups of varying sizes. In their

groups they were asked to figure out what was inside each box using all their senses except sight. Since they could not see what was in the boxes, they devised thought experiments to guess the mystery items. This process is reminiscent of a scientific method (Question, Hypothesis, Experiment, Results, Conclusion, or as we refer to it, QHERC). The learners asked questions (e.g., "Maybe it's round. Like a ball?") in order to form hypotheses (e.g., "I think it's a rock"). From there, they tested their hypotheses. As observed, some groups dropped their box to see if the item inside would bounce. Others smelled the box to see if the item had any distinguishing scent. Once every group finished examining each Mystery Box, the learners reconvened to share their findings.

One learner, Adam, claimed he was an investigator because he "used [his] senses" to discover what was in each box. He also stated that he "got them all wrong minus two." In other words, out of the six boxes, only two of Adam's hypotheses were correct. Despite this, Adam still self-identified as an "investigator." He used his senses to "examine patterns" within each mystery box. As observed, Adam asked questions about the contents of each box, as well as performed experiments to support his hypothesis.

Observer

Like investigator, "observer" was one of the highest self-selected identities across numerous activities. According to the brief description provided in their student booklets, an observer is someone who "detects different STEM ideas while listening and/or watching others" in the program. As mentioned earlier, middle school students sometimes created their own interpretations of each identity. Instead of detecting STEM ideas through listening/watching others, for example, some learners utilized the "observer" identity when they witnessed STEM ideas in their own actions. Learners believed they were most like this identity during activities where they had to examine objects that had been presented to them, such as during the artifact identification, faunal, and hypothesis testing activities.

In particular, the faunal analysis activity required learners to examine the unknown bone given to them, looking for similarities and differences between known bones in an animal skeleton. While some did not select "observer" as one of their identities for this activity, many used this terminology in their explanations that situated them as observers. In her student booklet, one learner, Jenny, stated that she "examined a bone" that had been given to her in an effort "to figure out if it was young [or] old, what animal it was, [and] if it was tampered with." Another learner, Daria, described "looking at bones and identifying the animals." In our observations, both Jenny and Daria seemed to be aware of their use of the scientific method. For example, Jenny and Daria made their connections by using phrases such as "looks like" or "I think" when speaking with a BU student about their conclusions.

Bravery

Bravery was one of the least self-selected identities across all the activities but one that the educators and BU students observed being exhibited among the youth participants. According to the brief description provided in the student booklets, an individual who exhibits bravery is someone who "worked [outside of their] comfort zone, tried something new, [or] did something that was scary." Being brave allows one to take risks they might not have done otherwise. Moreover, it allows a learner to expand their knowledge through trial and error. In the archaeology afterschool program, for example, adolescents may be working with concepts where they had little to no previous knowledge or experience. It took confidence, and bravery, to work with new concepts. They explored these new concepts in a judgment-free zone created by the educators and BU students participating in the program.

The Pythagorean theorem activity is just one of many activities in which the learners worked outside of their comfort zone. Since geometric concepts such as Pythagorean theorem are often taught late in eighth grade, it is safe to say that it may have been unknown to the learners in this program. During the activity, the educators provided the youth with a brief explanation of the concept as well as how it is used in archaeology. From there, they worked in tandem with the BU students to form a "perfect one-by-one-meter square;" that is, a square that measures one meter on each side and has a hypotenuse of "1.41 meter[s]" (see Figure 6). For the duration of the activity, the BU students questioned the learners on their thought processes in

an effort to help and guide them through the unknown concept (e.g., "Why is this side not exactly a meter?").

Figure 6: Image of middle school learners using the Pythagorean Theorem

When it came to the learners choosing an identity from the list provided in their student booklets, only one chose bravery. In her explanation, Diamond simply stated that she "was brave" without any further detail, leaving us to infer her motivation for this choice. While the other learners did not select bravery, the phrases they utilized in their explanations were ones that suggest this identity. Some learners used phrases such as "new math" when describing how they used their math knowledge to create a perfect square. To most, if not all the learners, the Pythagorean theorem was new. They had never seen, let alone worked with it before. Therefore, even if the middle school students did not select bravery as their identity for this activity, they still exhibited signs of bravery. Moreover, one participant, Jenny, made note of how she "kept over doing the meter" (in reference to trying to create a perfect square without the Pythagorean theorem), so she "used math to get it right." As observed, Jenny tried something new, failed, and tried again once receiving help from the educators.

Summary of Insights

Insights from the research highlight the pedagogical moves that graduate and undergraduate students utilized in supporting adolescents' participation as STEM learners, namely by fostering a safe and comfortable environment through building relationships and continuous encouragement, as well as posing different types of questions. As such, the BU students enacted the actions of informal educators and mentors, which have been shown to activate and/or increase adolescents' interest and engagement in STEM (e.g., Ko et al., 2018). In addition, learners' identities as STEM learners within the archaeological afterschool program, along with the activities in which they were most prevalent, highlight possible instances in which a middle school student's participation was shaping their developing identity as a STEM person. Prior research has documented how the development of one's identity in a STEM discipline through early learning experiences is associated with pursuing a STEM career (e.g., Dou & Cian, 2020; Godwin et al., 2016), fields that have a low number of historically excluded social identity groups (NSF, 2021).

Becoming an Informal Educator

In addition to the two aims described above, a third aim of the project addressed how participation in the informal program and professional guidance from the instructors helped graduate and undergraduate students on their journeys to becoming informal educators. The university students had a wide range of teaching experiences prior to working on the grant. Some had none, while others had only worked with college students; and a few had participated in some informal education settings. All had experience in STEM fields, but most did not have opportunities to combine STEM with informal programs. All students were on a journey to becoming comfortable and competent in this pedological experience. One graduate student, Kara, reflected on this process of "becoming" and contextualized it within their identity and experiences:

As a graduate student in Anthropology at BU, with a commitment to community engagement, this opportunity offered a way to advance my skills outside the formal university classroom. The grant provided professional development scaffolded by ongoing

[5] The Pythagorean theorem is a geometric concept which states that $a^2 + b^2 = c^2$ in any right triangle. Archaeologists use this theorem to create excavation squares, where solving for the hypotenuse is critical to making an exact square.

mentorship and guidance from the principal investigators whose behaviors and methods for community education encouraged my own self-reflection in youth engagement and teaching practices. Participation in the afterschool program provided an opportunity to combine formal and informal teaching pedagogy. I was particularly excited for this opportunity because I had prior experience with both ends of this spectrum. My undergraduate studies were directed toward a career in public teaching while my formative experiences as an archaeologist were on public history sites. In this section, I share my personal reflections on continuing my becoming an informal educator, mentor, and colleague as part of this afterschool program.

The first reflection is on the role that identity and internal connection plays in fostering long-term engagement and learning. Identity is a central driver in my professional trajectory and aspirations. As a first-generation university student, I've experienced the disconnect one can feel between formal education settings and one's own lived experience. My neurodivergent identity creates additional barriers in formal education settings as I approach and interpret information differently from neurotypical students. Informal education settings allow me to draw on my skills and connect with those individuals who may be underserved by more formal academic experiences.

While my actions are informed by my outsider status as a first generation, neurodivergent researcher, it is my queer identity that is truly central to the way I interpret and connect with the world. For a variety of reasons, I was apprehensive about publicly claiming a queer identity while involved in this program. My personal experiences in formal education settings support a body of research that suggests that queer educators face pressure to "return to the closet" (Endo et al., 2010; Harris & Gray, 2014). Recent discourse accusing queer educators and their supports of "grooming" students further encourages these hostile environments, for both educators and their students (Block, 2022). After building connections with the learners, I am reminded of the importance for them to see queer representation in their personal lives.

While I have never deliberately concealed my queer identity in my career, this experience was the first time I publicly displayed my "they/them/theirs" pronouns on my name tag. During the afterschool sessions I participated in, multiple learners positively commented on my pronouns. In each instance, I was able to build a stronger relationship with the adolescent and, hopefully, help strengthen their connection to a STEM identity. It is beneficial for youth to see their identities reflected not only in popular media and their history books, but among the community members and mentors they interact with in their daily lives (Kosciw et al., 2018). I did not connect with learners solely on the merits of a queer identity, in fact, aside from initial compliments on my pronouns, queerness wasn't discussed. Nonetheless, I know from personal experience the sense of comfort that can come from sensing you are not alone. The editors of Rethinking Schools argue that "a school that's a protective community for LGBTQ adults is a school that's going to be safe for kids" (Butler-Wall et al., 2016, p. 24). I contend that not only do we need to create a culture of protection around queer adults in our education systems, but as queer educators we need to be vocal and visible in order to demonstrate that safe space for our students.

Second, while I have experience in both formal and informal education settings, this was the first time I felt comfortable and confident enough in my skills to provide mentorship to my peers. My previous experiences as an educator led some of the other BU students to confide in me about their apprehensions and successes when interacting with our STEM learners. For many, this was their first experience as an informal educator, if not their only experience as an educator. Informal education requires a different skillset from traditional education settings and I tried to guide my peers in becoming more confident in engaging with the learners: giving advice on when to allow "off topic" conversations to continue and when to steer them back to our lesson, how to position yourself as a mentor to support youth learning rather than an authority figure, and how to relate the complex topics of our expertise to the interests and identities of our audience. While first surprised, these moments filled me with confidence in my abilities. Following these experiences, I made an effort to offer advice and mentorship to other teaching assistants in my department, many of whom do not have prior experience or training in education. In addition to "talking shop" about grading, assessment writing, and lesson planning, I also tried to open discussions about teaching philosophies and how to orient our preparation and practice to better accomplish our teaching goals.

Upon reflection, I can see how much I have learned since the beginning of my career. I can also see plenty of areas for growth and can imagine new horizons in my future that are not yet visible. In future experiences, and as I eventually develop and implement my own programs, I intend to practice nuanced methods of engagement with the public such as developing my skills in capitalizing on moments to encourage critical thinking and creativity, engaging with youth and the public in ways that promote personal connections with new content, and providing accessible opportunities of public engagement that support the growth of a common community. I hope to carry this openness and bravery throughout my career; taking opportunities to challenge myself while also opening doors for others to engage in new experiences. Moving forward in my career, I hope to develop and implement my own public programs centered around archaeology, culture, and history. While I have had previous experiences where I helped to administer established programs, experiencing the birth of a program and learning more about my becoming as an informal educator, mentor, and colleague are reflective practices and lessons that will benefit me along my future career paths.

Future Steps

Binghamton University's UACS initiative provided a novel approach to applying university resources to address a need for afterschool STEM programs in rural middle schools. Supported by BUCS, evaluated by TLEL faculty, and led by archaeologists from PAF, this pilot program used the science of archaeology to deliver hands-on STEM modules to youth learners. Indigenous representatives discussed their own perspectives on science, including the depth of their relationship with nature and commitment to protecting the environment. Their presentations enhanced the STEM learning modules and added a new dimension to student learning and the practice of pedagogy.

This pilot project offers a viable model for future partnerships between archaeologists, or other science professionals, and educators to assist local schools with critical educational needs. This informal afterschool program offers concrete practices and strategies that enhance and inform science education in middle school classrooms. There is promising potential to replicate this model in other rural schools and urban school districts in need of STEM learning opportunities. Such partnerships between universities and schools also have the potential to advance a growing specialization in the field of archaeology and community engagement, which is grounded in the principle of providing a public benefit from archaeological research. Lastly, as noted from our research, the program affords an opportunity to support middle school youth as STEM learners, as well as support post-secondary students interested in pedagogical practices.

Future initiatives would expand our afterschool program to more school districts and to other regions. The pilot grant focused solely on rural school districts. A next step would be to develop the program within urban areas, and possibly Indigenous school systems. New initiatives would also allow us to train teachers to implement similar programs, in both middle and high schools, thus accessing broader participation.

Implementing this project in partnership with BUCS offered a unique and critical support network that contributed to a successful informal education experience for youth in rural schools. Middle school youth learned from the diverse array of science modules, while archaeologists and educators advanced their own skill-sets in community-engaged informal education.

Acknowledgements

This material is based upon work supported by the National Science Foundation under Grant No. 2005734. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. Thank you to the youth participants and the undergraduate and graduate students who helped implement the program. We would also like to thank the three school districts that allowed us to work with their students, and particularly the teacher partners. Finally, our thanks go to the members of the Onondaga Nation, who presented to the youth and served as advisors for the program, Wendy Gonyea, Tony Gonyea, and Perry Ground.

References

Atalay, S. (2012). *Community-based archaeology: Research with, by, and for Indigenous and local communities* (1st ed.). University of California Press. https://doi.org/10.1525/j.ctt1pn9dj

Atalay, S. (2019). Can archaeology help decolonize the way institutions think? How community-based research is transforming the archaeology training toolbox and helping to transform institutions. *Archaeologies, 15*(3), 514–535. https://doi.org/10.1007/s11759-019-09383-6

Battle-Baptiste, W. (2011). *Black Feminist Archaeology.* Routledge.

Birks, M., Chapman, Y., & Francis, K. (2008). Memoing in qualitative research: Probing data and processes. *Journal of Research in Nursing, 13*(1), 68-75. http://doi.org/10.1177/ 1744987107081254

Blakey, M. L. (2008). An ethical epistemology of publicly engaged biocultural research. In J. Habu, C. Fawcett, & J. M. Matsunaga (Eds.), *Evaluating Multiple Narratives: Beyond Nationalist, Colonialist, Imperialist Archaeologies* (pp. 17–27). Springer.

Blakey, M. L. (2010). African burial ground project: Paradigm for cooperation? *Museum International, 62*(1–2), 61–68. https://doi.org/10.1111/j.1468-0033.2010.01716.x

Block, M. (2022, May 11). Accusations of "grooming" are the latest political attack—With homophobic origins. NPR. https://www.npr.org/2022/05/11/1096623939/accusations-grooming-political-attack-homophobic-origins

Bronstein, L., Kida, L., Garton, M., & Simpson, A. (2020). BU Community Schools: Building university-assisted community schools in small cities, towns and rural communities. *Universities and Community Schools, 10*(1), 18-33.

Butler-Wall, A., Cosier, K., Harper, R. L. S., Sapp, J., Sokolower, J., & Tempel, M. B. (2016). Queering our schools. In K. Cosier, R. Harper, J. Sapp, J. Sokolower, M. B. Tempel, & A. Butler-Wall (Eds.), *Rethinking Sexism, Gender, and Sexuality* (pp. 22–26). Rethinking Schools.

Collins, A., Bronte-Tinkew, J., & Logan, C. (2008). Strategies for improving out-of-school programs in rural communities. *Child Trends, 18*, 1-8.

Colwell-Chanthaphonh, C., & Ferguson, T. J. (2008). *Collaboration in archaeological practice: Engaging descendant communities. Rowman Altamira.*

Dou, R., & Cian, H. (2020). The relevance of childhood science talk as a proxy for college students' STEM identity at a Hispanic serving institution. *Research in Science Education.* Advanced online publication. https://doi.org/10.1007/s11165-020-09928-8

Dzigbede, K. & Young, S. (2019). Determining access to financial services among the young and poor in American communities. *Journal of Public Management & Social Policy, 26*(2), Article 11.

Endo, H., Reece-Miller, P. C., & Santavicca, N. (2010). Surviving in the trenches: A narrative inquiry into queer teachers' experiences and identity. *Teaching and Teacher Education, 26*(4), 1023–1030. https://doi.org/10.1016/j.tate.2009.10.045

Franklin, M., Dunnavant, J. P., Flewellen, A. O., & Odewale, A. (2020). The Future is now: Archaeology and the eradication of anti-Blackness. *International Journal of Historical Archaeology, 24*(4), 753–766. https://doi.org/10.1007/s10761-020-00577-1

Godwin, A., Potvin, G., Hazari, Z., & Lock, R. (2016). Identity, critical agency, and engineering: An affective model for predicting engineering as a career choice. *Journal of Engineering Education, 105*(2), 312–340. https://doi.org/10.1002/jee.20118

Gonzalez, S. L., & Edwards, B. (2020). The intersection of Indigenous thought and archaeological practice: The field methods in Indigenous archaeology field school. *Journal of Community Archaeology & Heritage, 7*(4), 239–254. https://doi.org/10.1080/20518196.2020.1724631

Harris, A., & Gray, E. (Eds.). (2014). *Queer teachers, identity and performativity.* Springer.

Joyce, H. D., Wade-Mdivanian, R., Anderson-Butcher, D., & Gibson, A. (2014). Afterschool sustainability. *Journal of Youth Development, 9*(4), 61-76.

Ko, A. J., Hwa, L., Davis, K., & Yip, J. C. (2018). Informal mentoring of adolescents about computing: Relationships, roles, qualities, and impact. *Proceedings of the 49th ACM technical symposium on computer science education* (pp. 598-603).

Kosciw, J. G., Greytak, E. A., Zongrone, A. D., Clark, C. M., Truong, N. L., & Gay, L. (2018). *The 2017 National school climate survey: The experiences of lesbian, gay, bisexual, transgender, and queer youth in our nation's schools.* Gay, Lesbian and Straight Education Network (GLSEN). Retrieved from http://www.glsen.org

Lee, Y., Quaranta, J., & Anderson, E. (2017). Fostering interprofessional collaboration through a family-centered program for grandparent headed families. *Journal of Interprofessional Care, 31*, 550-552. https://doi.org/10.1080/13561820.2017.1296420

McDavid, C. (2011). From "public archaeologist" to "public intellectual": Seeking engagement opportunities outside traditional archaeological arenas. *Historical Archaeology, 45*(1), 24–32. https://doi.org/10.1007/BF03376818

Maltese, A. V. & Harsh, J. A. (2015). Pathways of entry into STEM across K–16. In K. A. Renninger, M. Nieswandt, & S. Hidi (Eds.), *Interest and the Self in K-16 Mathematics and Science Learning.* Washington, DC: American Educational Research Association.

Maltese, A. V., Melki, C. S., & Wiebke, H. L. (2014). The nature of experiences responsible for the generation and maintenance of interest in STEM. *Science Education, 98*(6), 937-962. https://doi.org/10.1002/sce.21132

Mercier, A., & Carlone, H. B. (2021). Identi-beads and identi-badges as strategies to encourage STEM identity work. *Connected Science Learning, 3*(4). Retrieved from https://www.nsta.org/connected-science-learning/connected-science-learning-july-august-2021/identi-beads-and-identi

Miroff, L. E. & Versaggi, N. M. (2020). Community archaeology at the trowel's edge. *Advances in Archaeological Practice, 8*(4), 398-408. https://doi.org/10.1017/aap.2020.28

National Science Foundation [NSF]. (2021). *Women, minorities, and persons with disabilities in science and engineering*. Retrieved from https://ncses.nsf.gov/pubs/nsf21321

Science Museum Group. (n.d.). *Mystery boxes.* Retrieved from learning-resources.sciencemuseum.org.uk

Singleton, T. (1997). Facing the challenges of a public African-American archaeology. *Historical Archaeology, 31*(3), 146-152.

Snellman, K., Silva, J. M, Frederick, C. B., & Put, R. D. (2015). The engagement gap: Social mobility and extracurricular participation among American youth. *The Annals of The American Academy, 657*, 194-207.

Versaggi, N. M. (2007). Partners in preservation: The BU Community Archaeology Program (CAP). In J. H. Jamison, Jr., & S. Baugher (Eds.), *Past Meets Present: Partnerships in the Public Interpretation of Archaeology* (pp. 203-217). Springer Press.

Williams, D. (2010). *The rural solution: How community schools can reinvigorate rural education.* Rural School and Community Trust; Center for American Progress.

Zaff, J. F., Moore, K. A., Papillo, A. R., & Williams, S. (2003). Implications of extracurricular activity participation during adolescence on positive outcomes. *Journal of Adolescent Research, 18*(6), 599-630. https://doi.org/10.1177/0743558403254779

Integrating Implementation, Research, Teaching, and Learning: Penn's Netter Center as an Experiment in Progress

Anna Balfanz – *University of Pennsylvania*
Kathleen A. Givan – *University of Pennsylvania*
Rita A. Hodges – *University of Pennsylvania*
Theresa Simmonds – *University of Pennsylvania*
Faustine Sun – *University of Pennsylvania*

Anna Balfanz is the Academically Based Community Service Coordinator at the Netter Center. She first became involved with Netter as an undergraduate ABCS student and served as an ABCS Teaching Assistant. Balfanz graduated from Penn in 2019 with a degree in Environmental Studies and is currently pursuing a Master of Public Administration at Penn's Fels Institute of Government.

Kathleen A. Givan participated in ABCS courses as an undergraduate student at Penn and served as the Emerson Fellow of the Netter Center at the time of this writing, from April 2021 to December 2022. She is currently pursuing a medical degree at the University of Oslo's School of Medicine.

Rita A. Hodges is an associate director of the Barbara and Edward Netter Center for Community Partnerships at the University of Pennsylvania. Hodges has been engaged with the Netter Center for 20 years, starting as a Penn undergraduate, and is now a Doctor of Education (Ed.D.) candidate in higher education at Penn's Graduate School of Education.

Faustine Sun is assistant director of Penn's Netter Center. Sun became involved with the Netter Center as a Penn undergraduate and is now in her fifth year as Netter staff, supporting, among other things, the recruitment and ongoing personal and professional development of Penn students. Sun is currently pursuing a Master of Science in Organizational Dynamics at Penn.

Theresa Simmonds has served as the Training and Technical Assistance Coordinator for College Access and Career Readiness at the Netter Center since 2013. She began her work with Netter as an undergraduate, received her teaching certification from Penn, and returned to Netter after many years teaching high school in West Philadelphia. She is a Doctor of Education (Ed.D.) candidate in higher education at Penn's Graduate School of Education.

Abstract

In this article, we discuss democratic implementation research, a type of community-engaged research that explicitly focuses on co-creation of knowledge and implementation *with* local partners. It has become an increasingly central feature of the Netter Center's evolving approach to university-community-school partnerships, which has been a work in progress for 30+ years. To illustrate this approach in action, we provide three concrete examples of democratic implementation research involving Penn undergraduate and graduate students, Penn faculty, Netter staff, local high school students, school principals, teachers and staff, and other community partners. These examples point to the critical role that Netter's university-assisted community school staff play in implementing mutually beneficial partnerships and programs. We argue that democratic implementation research is a particularly powerful way to advance research, teaching, and learning, as well as create meaningful social change.

Introduction

The Netter Center's founding director, Ira Harkavy, has been an influential pioneer in what might be termed a "higher education democratic civic and community engagement movement" over the last four decades. From the late 1980s on, he argued for a central university entity dedicated to community partnerships.[1] In the early 1990s, he wrote that a higher education institution "can no longer try to remain an oasis of affluence in a desert of urban despair" (Benson & Harkavy, 1991, p. 14). This is even more true today given the persistent and growing inequities in our society (Aisch et al., 2017; Bellafante, 2021). Despite his firm belief that universities must become involved with their communities to help solve society's most pressing problems, Harkavy, at the time, did not envision higher education institutions taking an implementation role in community-based programs. He and colleague John Puckett wrote in 1991, "If the history of university-community relationships has taught us anything, it is that the role of operationalizing and managing community initiatives is a role that universities are ill-equipped to perform" (Harkavy & Puckett, 1991, p. 562).

They then elaborated:

> Not only are universities ill-equipped to perform operational roles in society, but it is inappropriate for them to do so. Stated directly, universities should be concerned with the production and transmission of knowledge. How well a university does both those things is how a university should be evaluated. Community initiatives should be carried out by other institutions in society. Although these points apply to universities in general, they hold particularly for elite, private, research universities. (Harkavy & Puckett, 1991, p. 563)

Although Harkavy may not have realized the utility of building implementation into the core of the university in the early 90s, he recognized that "the focus of social science need[ed] to shift from internally-driven critique to real-world engagement, practice, and critique" (Harkavy, 1992, p. 18). Indeed, the Netter Center's founders, namely Harkavy and his mentor Lee Benson, pushed against the call for so-called objective distant scholarship or value-free social science often attributed to the work of German sociologist Max Weber in the late 1800s (Sharlin, 1974). The "distant, expert approach to the subject [through traditional social science]," as noted by Harkavy in 1992, "deprives the expert of the kind of real, 'on the ground,' practitioner-based knowledge needed for good policy, practice, and theory" (p. 7). While calling for both a central university entity dedicated to community partnerships and an action-oriented participatory approach to produce knowledge for societal change through the 1990s, Harkavy at the time did not believe that the implementation of community-based programs should be carried out by the university.

Harkavy's thinking and practice have greatly evolved since the Center was founded in 1992, as has our own thinking and practice since we each became involved. The Netter Center's current approach emphasizes that universities should be directly involved in implementation of programs with local community partners – and that this is a particularly powerful way to advance research, teaching, and learning, as well as create genuine social change. Much of this evolution occurred organically. Netter leadership experienced what they had theorized — the value of a university-wide center in engaging, integrating, and applying the range of institutional resources (academic, volunteer, economic) to community-identified problems. Trusting and reciprocal relationships with the community contributed to Netter being asked by community leaders to be directly involved in program operation and management to help build the capacity and ensure the sustainability of programs. The Netter team also increasingly experienced firsthand the effectiveness of co-creating the work with the community, discovering positive and mutually beneficial impacts

[1] Harkavy, for example, served on a working group from 1985–1987 on the "University and the City" and played a key role in formulating recommendations to centralize community-oriented work across the university (see https://almanac.upenn.edu/archive/v33pdf/n29/040787-insert.pdf). The planning document calling for the establishment of a university- wide Center for Community Partnerships under Penn's President was written by John W. Gould, Ira Harkavy, Francis E. Johnston, Jane I. Lowe, and John L. Puckett in July 1991 while they attended the first Campus Compact faculty Institute on "Integrating Service with Academic Study" in Stanford; the Center (later the Netter Center) was established in July 1992 (Benson et al., 2017).

beyond its expectations (Benson, Harkavy, & Puckett, 2000). Programming then expanded by employing a growing and diverse staff (many with strong backgrounds in teaching and education, youth development, and community development) who are based primarily in schools and who work daily *with* community partners to implement programming. As we will describe, Netter's strategies, infrastructure and staff, particularly its community and school-based staff, have created the conditions to effectively connect Penn students and faculty with community members for mutually beneficial outcomes.

Netter's approach to community-engaged research and knowledge generation builds on the work of Jane Addams, John Dewey, Kurt Lewin, Paulo Freire, and Donald Schön, among others, and their focus on learning through resolving real-world dilemmas, ongoing critical reflection, and social change (Benson et al., 2013; Dewey, 1900; Freire, 1970; Lagemann, 1985; Schön, 1995).[2]

Harkavy (2023) laid out his latest argument for this epistemology with a call for a "democratic implementation revolution," in a speech to the Society for the Advancement of American Philosophy, later published in the Society's journal. The piece calls on faculty to engage in democratic implementation research with members of their university's local geographic community to help create democratic civic universities, whose *primary* mission would be advancing democracy democratically on campus, in the community and across the wider society. We quote here at length:

> I am, in effect, calling for a *democratic implementation revolution*, which requires breaking down idealist categories that separate theory and application, scholars and practitioners, and academics and community members. Useful perspectives and knowledge exist in many places and domains, not just in the university. The difficult question is how to bring multiple perspectives and various kinds of knowledge together to solve, not merely identify and address, the major problems facing our communities, society, and world. My answer to that question proposes that faculty do three interrelated things: focus on place-based local partnerships, develop an inclusive approach involving a "community of experts," and make democratic implementation the process and goal of research.
>
> ***1. Focus on place-based local work in the university's geographic community.*** Dewey famously wrote: "Democracy must begin at home, and its home is the neighborly community" *(Public and Its Problems 368)*. Democracy, he emphasized, has to be built on face-to-face interactions in which human beings work together cooperatively to solve the ongoing problems of life. I am updating Dewey and advocating the following proposition: *Democracy must begin at home, and its home is the engaged neighborly college or university and its local community partners.*
>
> The benefits of a local community focus are manifold. Ongoing, continuous interaction is facilitated through work in an easily accessible location. Relationships of trust, so essential for effective partnerships and effective learning, are also built through day-to-day work on problems and issues of mutual concern. In addition, the local community provides a convenient setting in which service learning courses, community-based research courses, and related courses in different disciplines can work together on a complex problem to produce substantive results.

[2] The argument for new forms of research and knowledge generation draws from a white paper that one of the authors, Hodges, contributed to as part of a National Science Founded funded project. See Harkavy, I., Cantor, N., & Burnett, M. (2015). *Realizing STEM Equity and Diversity through Higher Education–Community Engagement*. As described further in that paper, the distinguished philosopher of science Ernest Nagel particularly recognized the limitations of narrow, dogmatic application of the traditional scientific method (formulating a hypothesis and conducting structured experiments that control for extraneous variables). The American philosopher and professor of urban planning Donald Schön further emphasized the difference between researching as a detached observer versus an active participant. Only as an active participant, argued Schön, can a researcher develop trusting partnerships and gain access to "insider" knowledge (Schön, 1985). William Foote Whyte specifically pushed the methodology of Participatory Action Research (PAR) as an alternative to the traditional scientific research method. Netter director Ira Harkavy later collaborated with Whyte and Davydd Greenwood, describing PAR as "a form of action research in which professional … researchers operate as full collaborators with members of organizations in studying and transforming those organizations. It is an ongoing organizational learning process, a research approach that emphasizes co-learning, participation, and organizational transformation" (Greenwood et al., 1993).

Work in a university's local community, since it facilitates interaction across schools and disciplines, can also create interdisciplinary learning opportunities. Finally, the local community is a democratic real-world learning site in which community members and academics can pragmatically determine whether the work is making a real difference and whether *both* the neighborhood and the institution are better as a result of common efforts.

For Dewey, knowledge and learning are most effectively advanced when human beings work collaboratively to solve specific, important real-world problems in "a *forked road* situation, a situation that is ambiguous, that presents a dilemma, which poses alternatives" (Dewey, *Public and Its Problems* 122). Focusing on universal problems—such as poor schooling, eroding environments, inadequate health care, poverty, and high levels of economic inequality—that are manifested locally is, in my judgment, the best way to apply Dewey's brilliant proposition.

2. Develop an inclusive approach that involves knowledge possessed "on the ground" by community members. This approach expands the definition of expertise and knowing to include other voices—those not necessarily steeped in professional credentials or academic knowledge, but in lived experience of the conditions and actualities under examination. What is needed is a movement away from a narrow definition of an "expert" to a "community of experts"—a broadening of context to include indigenous place-based knowledge, which is essential for solving locally manifested universal problems (Cantor and Englot 121). Community members with that knowledge must also be *actively* involved when the problem is defined, and remain involved through the development and implementation of solutions (Whyte et al.)

3. Make democratic implementation the process and goal of the research. In their 1998 essay, the philosopher and systems scientist C. West Churchman and the organizational theorist Ian Mitroff in effect call for an implementation revolution in which implementation is the "top priority" of research. For them, "'[t]ruth' is the result/outcome of knowledge that is gained through the 'successful' implementation of a proposed, ethical solution to a significant world problem" (Churchman and Mitroff 117). As I have indicated, work *with* partners in a university's local community is perhaps the best way to develop an ethical implementable solution to a significant world problem. I would term this approach *democratic implementation research,* which involves the continuous integration of theory and practice in the course of place-based problem solving (Harkavy; National Science Foundation; "Committee on Equal Opportunities in Science and Engineering"). This approach assumes that human beings learn effectively (perhaps best) from and through ongoing implementation and reflection. It also assumes that research designed to realize large societal goals through developing and implementing programs on the ground with community partners, refining these programs, and engaging in an iterative process leads to significant learning, high-level theoretical advances, and improved practice. The core rationale for democratic implementation research is perhaps best expressed in a well-known maxim attributed to Kurt Lewin: "If you want to truly understand something, try to change it." (pp. 54-56)

Building on Harkavy's three interrelated components of democratic implementation research, we conceptualize it as a type of community-engaged that explicitly focuses on co-creation of knowledge and implementation *with* local partners. Like other forms of community-engaged research, democratic implementation research is an approach designed to simultaneously advance research, teaching, and learning while producing significant community change. Below, we provide three specific examples of democratic implementation research at our institution (one involving an undergraduate student, one a graduate student, and one a faculty member – and all involving university-assisted community schools) and use Harkavy's three components as a way to detail and analyze each case. We also explore the value of building democratic implementation into the core operations of a university-wide center, with a team of program staff to help integrate theory and practice in a way that will have stronger impact on the ground and produce better research, teaching, and learning. Stated more directly, we argue that two critical elements for the Netter Center in carrying out democratic implementation are the genuine engagement and leadership of local community members

and the active involvement of community-based staff. As we will illustrate, the researchers (whether undergraduates, graduate students, or faculty members) learn more and better through implementation with staff, school and community partners. And, as we will further illustrate, when a university center is involved in implementation, the university as a whole can make a greater difference in, with, and for the community, educate students more effectively, and make greater contributions to knowledge.

Netter Center Strategies and Infrastructure that Support, Facilitate, and Enable Democratic Implementation Research

During its early years, the Netter Center developed two key strategies that continue to underpin its work today. The first is *Academically Based Community Service* (ABCS): teaching, learning, and research rooted in and intrinsically connected to local, real-world, collaborative, community problem-solving. Academically Based Community Service also emphasizes student and faculty reflection on the experience and the larger systemic implications (e.g., why poverty, racism, and crime exist). The second, *University-Assisted Community Schools* (UACS), is a comprehensive approach to neighborhood and school improvement that educates and engages students, their family members and other members of the community, and provides an organizing framework for bringing university resources, including ABCS courses, to local schools. A third strategy focused on democratic anchor institutions later developed. We now see ABCS and UACS as core to a comprehensive anchor institution strategy, in which universities engage and integrate their extraordinary intellectual and institutional resources in significant and sustained democratic partnerships with their local communities.

In recent years, the Netter Center has supported seventy to eighty Academically Based Community Service (ABCS) courses annually, which enroll over 1800 Penn students. ABCS courses engage students in collaborative real-world problem-solving with local community partners and are typically hands-on and project-based, with the goal of improving conditions on campus and/or in the community. A critical component of ABCS is ongoing reflection on the problem-solving experience to help students better understand its connection to and impact on systemic issues. ABCS faculty and students can access various resources from the Netter Center, including support with clearances to work with minors, transportation to sites, literature and workshops on key topics for mutually beneficial engagement, and connections to local partners such as UACS.

The Netter Center's school-based work has grown to include approximately 3,700 children and their families at eight University-Assisted Community Schools (UACS) sites in West Philadelphia where programs are implemented during the school day, afterschool, weekend, and summer. Netter Center site directors and coordinators are based at a particular site full-time and collaborate closely with that school and its community to determine activities that best serve their specific needs and interests. Additional UACS staff focus on thematically based programs such as College Access and Career Readiness, Environment and Sustainability, Health and Wellness (Mental Health, Nutrition, Sports, Fitness), Humanities (Arts, Culture, Literacy), and STEM Education. At each site, Netter's UACS staff work as part of a team under the leadership of the school principal and teachers, who set the tone for collaborative learning and practice. UACS staff serve as liaisons between the university and the school, as well as between schoolteachers and the after-school program. The work is further supported by the efforts of Penn faculty and students in ABCS classes, as well as by Penn student interns and volunteers. Evaluation of ABCS courses and UACS programs is conducted by Netter's full-time director of evaluation and research and her team of staff and university students, who work to fulfill grant-required evaluation of community partnership programs as well as support community-engaged research projects connected to ABCS and UACS.

Netter's approach includes the inclusive participation of a diverse staff and four advisory boards—Community, Faculty, National, and Student—in guiding its direction and activities. As new challenges and opportunities arise

for the Center's work as a whole, Netter convenes ad hoc working groups, such as our Anti-Racism Working Group, comprised of staff, faculty, students, and community members, to develop action-oriented plans.

Once plans are collaboratively determined, initiatives are largely operationalized by Netter's fifty full-time staff and 100+ part-time staff, along with undergraduate and graduate student leaders. Highly diverse with large representation from the West Philadelphia community, Netter's team of staff serves as community engagement professionals, program directors, project coordinators, teachers, mentors, partners, innovators, conveners, and implementers. We have, in effect, built an internal "community of experts"[3] among our staff who develop and maintain relationships across campus and the community and are able to guide the successful implementation of mutually beneficial student-, faculty-, staff-, and community-led projects. The Netter team has also created an informal learning community that includes staff, faculty, undergraduate and graduate students, and youth and adults from the community, who continually learn together through collaborative real-world problem-solving, implementation, and reflection. This inclusive and collaborative approach has not only improved practice but has advanced knowledge and learning. It has also moved us closer to what Sturm et al. (2011) call "an architecture of full participation" including "the co-creation of spaces, relationships, and practices" through "ongoing collaboration among leaders at many levels of the institution and the community" (pp. 13-14). An architecture of full participation is a core principle of the organizational infrastructure that Netter has built over time to support democratic implementation research. The Netter Center's work as a whole might be described as an ongoing democratic implementation research project, with its many programs, courses, and other activities, as well as its culture of ongoing reflection and iteration, contributing to the overarching goal of democratic and mutually transformative partnerships between the university and its local geographic community.

We now turn to three specific examples of democratic implementation in practice, first, to illustrate how this approach can help create genuine community and university change while advancing learning and knowledge, and second, to test the utility of Harkavy's three components of democratic implementation research (Harkavy, 2023). These examples highlight the roles of undergraduate students, graduate students, and faculty working with Netter staff and community and school partners, to develop and implement new, or advance existing, initiatives. We hope these stories stimulate ongoing conversation among our own team and partners, as well as amongst others, to improve practice and advance knowledge for social change.

Undergraduates and Problem-Solving Learning (PSL)

Universities possess enormous resources that, when mobilized, can make extraordinary contributions to their local community (Harkavy & Hodges, 2012). Perhaps the most significant of these resources is the intellectual and human capital of creative and idealistic students, particularly the thousands of traditional undergraduates who call the university home for three or more years. In particular, engaging undergraduates in democratic implementation of programs contributes not only to improvement of community conditions, but also to transformation of the university's teaching, learning, and research (Harkavy et al., 2021).

As mentioned above, the Netter Center engages thousands of Penn students—largely undergraduates—with the West Philadelphia community through ABCS courses, work-study positions, academic internships, and volunteer opportunities. Students play various leadership and supportive roles, including developing new ideas to expand or improve programs; planning, organizing, and executing activities; and helping to evaluate impact. They work closely

[3] This is an extrapolation of the term "community of experts" referenced earlier in the article (Cantor & Englot, 2013, p.121). It expands the definition of expertise and knowing to include other voices—those steeped not necessarily in professional credentials or academic knowledge but in lived experience of the conditions and actualities under examination.

with staff, who provide guidance and resources to implement effective, mutually beneficial partnerships. Ongoing critical reflection is a key aspect of the engagement.

"URBS1780: Faculty-Student Collaborative Action Seminar in Urban University-Community Relations: Penn and West Philadelphia as a Case Study in Progress"[4] is an ABCS course co-taught by Netter Center founding director Ira Harkavy and College Access and Career Readiness Coordinator Theresa Simmonds. Dating back to 1985, Urban Studies 1780 is the longest-standing ABCS course, integrating service with research, teaching and learning. The service component of this ABCS course includes college access support in a local high school, which gives students context for Netter's UACS work. The heart of the course is its problem-solving learning (PSL) approach, in which students learn by thinking through complex societal problems manifested locally and developing implementable steps toward structural community improvement.[5] PSL centers on action-oriented, collaborative, real-world problem-solving in which students become agents of change themselves. Working in groups or individually, they employ the PSL framework (see Appendix A) to guide their research and proposal. (See Appendix B for titles of recent PSL papers.)

The primary criterion on which the PSL papers are evaluated is implementability: students must detail who does what, when, and how in their proposed solutions fully and robustly enough that they could actually implement them. Critical to that implementation is democratic collaboration with Netter staff, who, by virtue of their work in the schools and community, comprise a community of experts.

During the first third of the course, in addition to having members of Netter's Community Advisory Board lead one of the seminars, the undergraduate teaching associate arranges for Netter staff to visit the seminar and meet in small groups with students to discuss the Netter Center's work and the students' PSL paper ideas. Staff members are predominantly UACS-affiliated (program directors, program staff, and site directors). Staff help students determine how helpful and suitable their proposals (e.g., an after-school reading program, a high school dance program, supports to local nonprofits) would be to relevant partners; learn about the context of their proposed program sites (e.g., why an after-school program might be more implementable than a school-day one; which principal is really interested in STEM programs); and suggest and share resources and connect the students to critical people (e.g., principals, subject teachers, other Netter staff, themselves). They also provide encouragement and moral support.

Towards the end of the course, staff return and meet, individually or in pairs, with each PSL paper group. After each group describes the latest version of its proposal, staff give detailed feedback, suggesting additions and revisions, connecting students, again, to critical agents in the implementation process, and providing support for the home stretch of PSL paper writing. Steven Chen (Penn Class of 2024) described the importance of staff support in his final PSL paper reflection: "Before this internship and seminar, I often felt overwhelmed and powerless when working on solving large and complex issues related to health and education.... However, this PSL journey has provided me with hope and optimism. The enormous amount of support, encouragement, and gratitude from the Netter Center staff that I work with has helped me find my way back to my goal of supporting the community no matter how big or small the action."[6]

Now that we have described the collaborative research process of the PSL paper, we will turn to the implementation process. Students who write exceptional PSL papers, like Steven, are invited to work as Netter Civic Development Interns to implement their PSL papers beyond the completion of the seminar. The internship combines a paid internship experience focused on democratic, collaborative community problem-solving with an informal monthly seminar that facilitates ongoing reflection of their work in a peer community of learning. Once democratic

[4] URBS1780 is cross-listed with History and Africana Studies.

[5] The PSL approach can be used with students K–16+.

[6] Email correspondence with T. Simmonds, 5 August 2022.

implementation begins, the iterative process becomes increasingly responsive to community members, as students often have to adapt their proposals to changing school and community needs.

Steven's implementation process embodied the three interrelated elements of Harkavy's *democratic implementation revolution:* it focused on place-based local work in the university's geographic community; it developed an inclusive approach that involves knowledge possessed "on the ground" by community members; and it made democratic implementation the process and goal of the research.

Focus on place-based local work in the university's geographic community: Steven's PSL paper, "OurSpace's Sexual Health Education Program," focused on the national problem of inadequate queer sexual health education as it is manifested in the School District of Philadelphia. Working with two Netter staff members who were already involved in sexual health education in West Philadelphia, Steven developed an after-school sexual health education program using a peer-assisted learning model, starting with students in Netter programs at its UACS sites.

Develop an inclusive approach that involves knowledge possessed "on the ground" by community members: Because he emphasized democratic collaboration with community members and prioritized their knowledge and feedback, Steven collaborated with LGBTQ+ students and the adults who work with them from the beginning of the implementation process. He saw them as a community of experts and consequently maximized OurSpace's effectiveness and sustainability: "The most helpful part of my collaboration with (Netter staff) was their loving relationship and collaboration with the experts: the West Philadelphia community, specifically the LGBTQ+ students and the staff who engage with these students. They connected me with the staff members and students which allowed me to ask them questions about what they would want and need from OurSpace. Their responses and feedback shaped the entirety of OurSpace and the different programs and initiatives within it. Without them, OurSpace would not be what it is today."

Steven noticed a difference between his work with OurSpace and his previous work with other groups: "In my collaborations with other entities at Penn, when implementing or developing programs, they often root their implementation and development strategies...in their existing knowledge, theory, and academic works rather than basing their strategies and plans on the direct wants and feedback of the population the program aims to serve. This often leads to ineffective and unsustainable programming."

Make democratic implementation the process and goal of the research: Steven's co-creation and ongoing collaboration with staff and community members exemplifies Netter's approach to democratic implementation, as he developed his ideas in close partnership with the people who best knew the context in which the program would operate. Staff members worked with Steven on the recruitment of Penn student participants, curriculum, transportation, funding, and supervision of the program. Steven brought a deep commitment to queer sexual health education and a willingness to work exceptionally hard to bring his vision to fruition, while the staff members brought their enthusiasm to teach, to contextualize, to collaborate, and to share resources. What resulted is a queer sexual health program which piloted in Fall 2021 and served 54 young people (high school and college students) in its first year. The program continues to operate democratically, as Steven, among other things, surveys the students regularly to choose guest presenters and meeting content.

In order to sustain the program, Steven and Netter Director of UACS Sports, Fitness & Health Paulette Branson developed an organizational structure for OurSpace. All Penn and high school interns who are not graduating are offered the opportunity to return as interns the following year. To ensure a smooth leadership transition, another Penn student has been shadowing Steven and taking on some of his responsibilities, and Steven and Paulette are developing documentation and training for the new coordinator. Both the shadowing and document maintenance

will continue as each coordinator graduates. Weekly meetings to debrief and make decisions are also part of the organizational structure.

Steven wants to continue OurSpace's relationship with the schools they currently partner with and reach out to new schools. He shared the lessons learned from OurSpace implementation, as well as student-generated materials, with GSAs (Gender Sexuality Alliances) throughout the School District of Philadelphia at District-sponsored meetings. He has also connected other programs and organizations that Our Space has worked with, such as Penn Reproductive Justice (a Penn student-led group focused on menstrual and reproductive health education and advocacy), to public school teachers and after-school programs.

Figure 1: OurSpace program leads, undergraduate Steven Chen (second to the right) and Netter Center Director of UACS Sports, Fitness & Health Paulette Branson (first to the right), pose for a photo with Penn student and high school student participants while meeting in Penn's LGBT Center.

As demonstrated by Steven's experience, undergraduate students' democratic implementation research, conducted through the PSL process and assisted by staff, engages students in powerful, energizing, real-world learning and research. When students co-create and co-implement their projects with UACS staff and community partners, there is even greater potential for positive impact on the community and on the students' learning. Staff also become better teachers, as they help Penn students connect what they learn to real-world problems and take the further step of acting to solve them.

While undergraduates make up the majority of university students engaged with Netter Center programs, graduate students are also considerably involved in our work. They bring significant experience and expertise that allow them to take on additional, and oftentimes different, leadership responsibilities. In the following section, we describe one role that graduate students can play in advancing community-engaged scholarship and democratic implementation research.

PhD Students and the Provost's Graduate Academic Engagement Fellowship at the Netter Center (PGAEF@NC)

PhD students engaging in community-engaged scholarship are particularly strong case studies for exploring how implementation improves teaching, research, and learning at a university, while also examining the organizational strategies and staff support necessary for its success. The Netter Center developed the Provost's Graduate Academic Engagement Fellowship at the Netter Center (PGAEF@NC) in partnership with the Provost's Office to support PhD students' current community-engaged scholarship as well as their development as future community-engaged scholars and leaders. The fellowship accepts two to three new PhD students from any of Penn's twelve schools each year.[7]

[7] Faculty advisors for PGAEF are not limited to the student's home school; for example, one fellow from the School of Medicine is being advised by a faculty member in the School of Arts and Sciences.

As part of their fellowship, PGAEF either serve as teaching assistants or instructors for an ABCS seminar or work on ongoing research projects that are focused on West Philadelphia/Philadelphia and involve undergraduates.[8] The fellowship also includes participation in a regular faculty-fellow seminar, which creates a diverse, cross-generational community for mentorship and collaboration. Seminars consider both theoretical and practical questions on community-engaged scholarship. For example, in one seminar, fellows prompted discussion on the following questions: How do we balance our own interest and research questions with what the community needs or has the energy to make space for? And how do we modify research questions, in order to do local participatory research, without losing applicability? As one PGAEF@NC fellow reflected, the seminars have a "radically interdisciplinary group of faculty…it's a rare audience…[this is] really appreciated."

The process of guiding fellows from project ideas to implementation showcases how staff serve as coordinators, mentors, and, in many cases, community partners themselves. They often introduce the fellows to potential place-based partners and may also help lead and/or help sustain the resulting collaborations after the students graduate. Particularly when working within university-assisted community schools, Netter UACS staff teach fellows how to navigate the school's complex structures and convey knowledge of both long-term school and community trends and politics alongside day-to-day events and happenings.

We now turn to a brief case study exploring one PGAEF@NC fellow's experience implementing a youth participatory action research program. Ava Kikut, a PhD student in the Annenberg School for Communication, sought to advance knowledge in her field through implementing a problem-solving project with local middle and high school students, as well as Penn undergraduates, through youth-driven health campaigns.

In Spring 2020, Ava began her Provost's Graduate Academic Engagement Fellowship at the Netter Center. In order to refine her research question and methodology and to get to know the community, she joined existing UACS programs run through the Netter Center. While these programs focused on peer-to-peer health behavior and improvement outreach, they lacked a research-backed methodology for achieving this goal. Netter staff, therefore, helped carve out spaces in their programs' curricula for Ava to join as a guest speaker and lead the students through the health communication campaign development process she learned in her research lab. This approach, when combined with a peer-to-peer framework, means that a group identifies, via an open-ended discussion, their own barriers and facilitators to undertaking a specific behavior, as well as their beliefs related to self-efficacy, behavioral norms, and behavioral outcomes. Their answers are turned into a close-ended survey that is distributed to their peers and these results are used to create a health campaign customized to their peers' beliefs around this behavior. Over the spring and summer, Netter staff invited Ava to integrate this process into environmental health, sports and fitness, and literacy programs.

In Fall 2021, Ava began working with Netter Center programs that explicitly used a Youth Participatory Action Research (YPAR) methodology. In YPAR, youth and adult participants each have roles to play in all stages of the research process, including problem identification, survey development, quantitative data collection, quantitative data analysis, and interpretation. The adults play a supportive role to the youth decision making—for example, in the survey design and quantitative data collection steps, the youth plan the incentive and design and implement the distribution, and the adults finalize the survey online and order the incentives. Participating in these Netter staff-run programs helped Ava integrate YPAR into the campaign development process, which allowed her to gradually develop and work towards her PGAEF@NC research goal of "develop[ing] a sustainable YPAR model for high school and undergraduate students to use communication research to address health issues prioritized by youth." She gained more autonomy over time. Starting in Spring 2021, Ava worked closely with Netter staff to lead a team of eight

[8] The second year of the fellowship includes full funding for the academic year, including stipend, tuition, general fee, clinical fee and health insurance. The fellows also receive a research fund, a conference fund, and one summer stipend.

high school students (youth interns) and four undergraduate student mentors as part of a 10-week virtual internship program. Through a democratic process, youth interns chose to develop a media campaign encouraging peers to seek support for mental health challenges. The team designed and distributed a survey to high school students outside the program, analyzed data, and developed Instagram and TikTok posts addressing barriers to support-seeking identified in the survey data. In the Summer and Fall of 2021, Netter Center staff integrated this campaign development process into YPAR programs, culminating in data-informed youth-driven messages encouraging peer exercise as a coping mechanism for mental health challenges and COVID-19 vaccination.

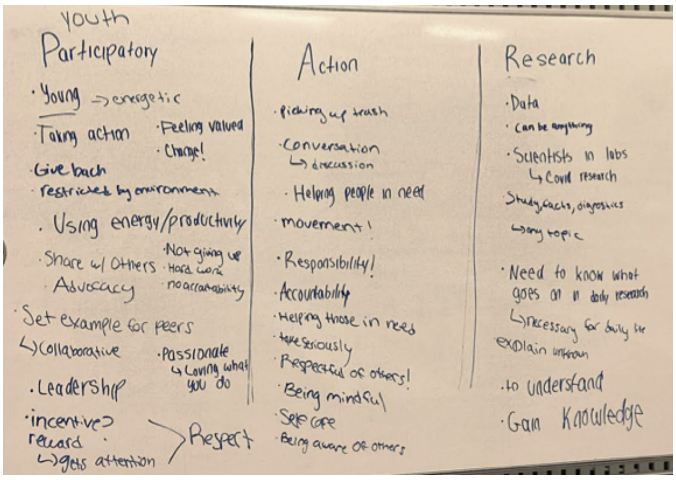


Figure 2: High school students define Youth Participatory Action Research (YPAR) collectively on a whiteboard. Ava first led this exercise with the undergraduate students in her ABCS course, and the Penn students then facilitated the same activity during their orientation session with the high school interns.

In Spring 2022, Ava ran the ABCS course she had designed as part of her fellowship, "COMM371.301: Youth Driven Health Campaigns," which taught Penn students how to support high school students with YPAR-informed campaign development. Through the ABCS course, Ava applied implementation to teaching and learning for undergraduates. The teaching and learning goals included developing and applying communication research skills, including YPAR, analyzing health issues impacting youth, and building relationships with youth.

Ava's process and program exemplify Harkavy's three tenets of democratic implementation research.

Focus on place-based local work in the university's geographic community: Prior to the development of the program that ultimately produced rigorous research results, Ava engaged with existing Netter Center programs at UACS in West Philadelphia focused on environmental health behaviors and improvement. This allowed her to support ongoing programs, develop her research methodology, and get to know the youth in university-assisted community schools and existing approaches to health communication programs.

Then, while working with Netter staff members leading youth internship programs, Ava developed an ABCS course that used Youth Participatory Action Research. During this ABCS course, the Penn and high school students identified specific youth-identified health priorities in their local community. They narrowed in on the national problems of both mental health and Covid vaccine hesitancy, as they are manifested in West Philadelphia schools.

Develop an inclusive approach that involves knowledge possessed "on the ground" by community members: Ava joined an existing community of experts composed of Netter staff, UACS students, and community partners. In doing so, her research and teaching on youth-led public health campaigns benefited significantly from the guidance of those experienced in peer-to-peer mental and physical health programming. During preparation, staff transferred community-specific knowledge (such as school and neighborhood context), reviewed lesson plans, and convened and introduced relevant community partners. Ava's engagements with existing programming gradually increased in duration and contribution—from short-term focus group-style engagements to longer sessions in which she served as a

co-facilitator. Her experience implementing the program allowed her to refine her research design and activities for youth-driven health campaigns as she went along, ultimately helping her to conduct more responsive and effective research.

Make democratic implementation the process and goal of the research: The culmination of these preparatory experiences was the implementation of a highly successful YPAR project focused on youth-driven health campaigns, that has also resulted in multiple abstracts and journal articles, as well as a dissertation chapter focused on the experience. The collaboration between Ava and Netter staff started in June 2020, and the resulting "YPAR program" has since run over five times in summer and after-school programs facilitated by Netter UACS site directors and program staff including Kavon Bailey, Paulette Branson, Katey Givan, Tamera Morris, and Jazmine Smith. Research teams, including faculty, staff, university students, and local high school students, have focused on a variety of self-selected topics, including vaccination and mental health. Post-program surveys reflect high school students' growth in self-confidence, professional skills, and self-efficacy.

Developing and implementing the YPAR program with staff and community partners, refining these programs over multiple semesters, and engaging in an iterative and reflective process led to the advancement of knowledge and improved practice. For example, Ava's experiences in the spring and summer of 2021 with Netter's cross-grade sports program informed the vaccine program design; specifically, she learned to give high school students additional time for both analyzing an issue and designing their messaging. Netter UACS staff played a critical role in setting the stage for this democratic process. During the early stages of the program, staff used the relationships developed during years of prior programming to identify high school student participants who were interested in the topic, likely to be engaged, and have relevant career goals. Staff also provided wrap-around pedagogical support during early programming. For example, during the first iteration of the YPAR group, Netter Center staff led the professional development activities, team bonding exercises, and college exploration activities, allowing Ava to focus solely on planning and executing the research-oriented activities. And within the execution of research-oriented activities, Netter Center staff provided cues to Ava on pacing and small group formation, as well as led brain-break activities throughout each session.

As the program developed, programmatic needs changed. While Ava and her team of undergraduate students now had established relationships with students from previous cohorts, successful programming still relied on staff knowledge of the local school context. For example, early in the semester of the fourth iteration of the program, the partnering high school experienced a highly traumatic event during the school day. Staff immediately informed Ava, who was able to pivot the planned research activities for the remainder of the semester, providing a space for students to process the event as well as plan research-based advocacy responses. This partnership proved highly successful in positively influencing students' experience with the traumatic event, and was referenced as impactful by high school students, Penn undergraduates, and community staff members in post-program reflections.

During the writing and presentation stage of the research, UACS staff helped Ava identify productive ways to include student voices and protect students' rights relating to anonymity and control of their own stories. After publications were accepted, staff helped select high school student participants and prepare them for presenting at a national research conference. Netter Center staff served as chaperones for these students during travel, allowing them to participate in an academic research conference prior to their high school graduation.

Ava was a member of the second cohort of PGAEF@NC, with the fifth cohort to be named shortly after the time of this writing. The program has had strong outcomes for its graduates, including three who have received tenure-track positions. Ten new ABCS courses, for both undergraduate and graduate students, have been or will be taught by PGAEF@NC fellows, and multiple fellows are integrating the work into their dissertations. Ultimately, PGAEF@NC is designed to elevate the education and training of the next generation of community-engaged scholars. As demonstrated here, Netter's infrastructure with its knowledgeable staff has been essential to successful implementation of the PhD students' community-engaged research projects.

Faculty-driven Democratic Implementation Research through Academically Based Community Service

As it stands, the university is nowhere close to having a "critical mass of faculty members" engaging in democratic implementation research activities (Harkavy 2023, p. 57). However, faculty in departments across the university, including nursing, anthropology, and neuroscience, have conducted democratic implementation research as part of their Academically Based Community Service (ABCS) courses. This research has both informed and been informed by Netter staff who operate day-to-day programming in the community.

Taught by Dr. Loretta Flanagan-Cato, Associate Professor of Psychology, the "Everyday Neuroscience" ABCS course began a partnership in 2018 with Paul Robeson High School to support the school-identified need for improved STEM education. In "NRSC 1160: Everyday Neuroscience," Penn students develop and implement 10 hands-on small-group labs with Robeson high school students. These inquiry-based labs strengthen the high school students' foundational STEM skills and build scientific curiosity while also preparing them for the statewide Pennsylvania Keystone exams. At the same time, Penn students, through designing and facilitating weekly STEM activities, increase their understanding of the topics while developing their science communication and teaching skills. The Penn students additionally learn about education disparities and complete a final project connected to the societal context of their experience, such as creating education policy recommendations. Perhaps most importantly, the Penn students cultivate personal relationships with the Robeson students, and they provide trusted support, both in academics and life in general.

Dr. Flanagan-Cato and science teachers at Robeson collaborate closely to align the labs with the high school classroom biology instruction. The Netter Center staff work closely with Dr. Flanagan-Cato and the STEM teachers to cultivate additional, complementary partnerships to provide the high school students with wrap-around support. Robeson leadership attributes the significant growth in Robeson students' scores on the state standardized exams in recent years in large part to these Penn-Robeson STEM partnerships (García & Magubane 2023).

Dr. Flanagan-Cato leads research initiatives on "Everyday Neuroscience" to identify the benefits of service-learning courses on students and on society. She has hypothesized that "the combination of academic tasks and social dynamics in Everyday Neuroscience solidified students' content knowledge" (Flanagan-Cato, 2019, A48). Study results have shown preliminary indicators of growth in Penn student well-being (Flanagan-Cato, 2019; Flanagan-Cato et al., 2023), confidence in expressing their own ideas, and social awareness/informed citizenship as a result of taking the course (Flanagan-Cato, 2019). Flanagan-Cato's 2019 article also concludes that participating in the ABCS course increased scientific communication skills and "civic awareness" and can help students apply "their scientific expertise to benefit society" (p. A49). Other studies by Dr. Flanagan-Cato revealed that "intergroup contact" between the Penn and Robeson students increased Penn students' feelings of warmth and competence and interpersonal closeness towards the Robeson students (Steele et al., 2022), and reduced intergroup anxiety (Flanagan-Cato et al., 2023), with broad implications for the benefits of service-learning courses on reducing societal bias.

We examine this course and partnership further through Harkavy's components of democratic implementation research.

Focuses on place-based local work in the university's geographic community: "Everyday Neuroscience" explores how hands-on, collaborative science labs can reduce the problems of inadequate and underfunded STEM education in poor school districts. It further explores how service-learning courses can benefit students and society. It engages with these democratic implementation research questions each semester through a place-based initiative at Paul Robeson High School in West Philadelphia, just a few blocks from Penn's main campus and one of Netter's most intensive university-assisted community school sites. This ABCS course is one of approximately thirteen that have partnered

with Robeson over the last few years, in which Penn faculty, Netter staff, and Robeson teachers work together to develop innovative and effective ways to improve teaching and learning (García & Magubane 2023). The Robeson students also participate in a number of other school day and after school initiatives led by Netter staff and student leaders, from school gardens to a writing center, from college access mentoring to pathways programs into careers at Penn Medicine.

Develops an inclusive approach that involves knowledge possessed "on the ground" by community members: The hands-on mini laboratory experiments conducted through the course require school-based knowledge on how to create maximum impacts for Robeson students (adapting labs to their needs and skills) and Penn students (ensuring the logistics and interactions go smoothly). When developing the course, Netter UACS staff brought Dr. Flanagan-Cato and Robeson teacher partners together for extensive conversations on the needs of the high school and Penn students, the scheduling, the roles of the teachers, and the classroom norms – all before diving into the detailed content of the lab activities (Flanagan-Cato, 2019).

Dr. Flanagan-Cato's acknowledgements in her 2019 article in *The Journal of Undergraduate Neuroscience Education* capture the significance of an inclusive and collaborative effort:

> A community engagement course requires unique support compared with other types of courses. In the case of Everyday Neuroscience, it is worth emphasizing that the strong commitment and open communication with our partner high school made an enormous difference, especially by optimizing the participation of the high school students. As noted above, the interaction with the high school students was the most valuable part of the course for the college students. To ensure high school students' attendance, the high school staff had to consider numerous scheduling considerations, teacher and classroom goals, individual students' needs, and any impact on various testing requirements. These efforts to collaborate were notable given the pervasive "test-based accountability" that often leads to a strong adherence to a strict standardized curriculum. For this work and open-mindedness, I thank Principal Richard Gordon, Science Coordinator Louis Lozzi, and teachers Milan Neeley and Brian Horn. Their ability to fully collaborate was inspiring. The logistical support of the Penn's Netter Center for Community Partnerships was critical for identifying our community partner and minimizing various financial hurdles, such as teaching assistant support and laboratory supplies. More importantly, the Netter Center was an invaluable resource for pedagogic guidance and aspiration, and I especially thank Dr. Ira Harkavy, Dr. Richard Carter, Cory Bowman, and Theresa Simmonds for their generous and enthusiastic support of this work. (A49-A50)

Make democratic implementation the process and goal of the research: The teaching and learning, as well as the hypothesis-driven research connected to the course, have been advanced through the co-development and implementation of programs with community partners, and an iterative and reflective process that improves the program and analyzes its benefits. "Everyday Neuroscience" has partnered with Robeson High School every semester since spring 2018. The deeply collaborative approach and ongoing dialogue between the faculty, Robeson administration, and Netter staff have allowed the course to adapt and persist even throughout severe Covid restrictions in 2020 and 2021. Each semester, new iterations of the lab activities are developed, which allows for fine-tuning based on feedback from the Robeson students and teaching staff, and opportunities for innovation and creativity from the Penn students. Robeson teachers, as the adults who know the high school students well and see them every day, receive regular feedback on the course beyond what could be gained by the Penn students and faculty alone. This allows for ongoing adjustments to the course that have helped facilitate its success. As some examples, when the course began, the Penn students came to Robeson High School and worked with the entire Biology class (Flanagan-Cato, 2019).

Figure 3: Robeson High School students and Penn students in "Everyday Neuroscience" taught by Professor Flanagan-Cato answer biology trivia questions on their last day of class together. Figure 4: Eric Yang (left), a fourth-year neuroscience major in the School of Arts & Sciences, and mentee Jayden Thompson (right), from Robeson High School, exchange a celebratory handshake.

After a few years, this changed to bringing a more carefully-chosen group of tenth graders in the Robeson Biology class to Penn's campus. Now, every semester, the Robeson science teachers hand-select which Robeson students participate in the labs, grade the Robeson students' lab worksheets, provide tours and introductions for the Penn students, and ensure the Robeson students make it to Penn's campus every week. When it became clear that the students needed additional math support, Dr. Flanagan-Cato and Netter staff identified a Penn math professor to teach an ABCS course for the same group of students. Additional changes over time have included increasing the maximum number of undergraduate students enrolled in the course and expanding the course to include a graduate student section (through a new course developed by a PGAEF@NC fellow working with Dr. Flanagan-Cato). The formal and informal research connected to this course directly advances the democratic implementation of the science program as well as knowledge more broadly.

This ABCS course is one of over 200 that have been developed in more than 40 departments across Penn's 12 schools. Seventy to eighty such courses are offered each academic year. Significant activity is underway at Penn to further advance community-engaged research and scholarship, including ABCS courses. An ad hoc committee of Netter Faculty Advisory Board members (which included Dr. Flanagan-Cato) was charged by the Provost's Office to develop a definition of community-engaged scholarship for Penn. Their final report was released in fall 2022 and is being widely disseminated. Democratic processes and place-based mutually beneficial partnerships based on the Netter Center's work are prominently featured. ABCS courses are also highlighted in the report as an effective form of community-engaged scholarship: "Such pedagogical experiences help students see the relationship between theory and practice.... [ABCS courses] are a powerful way of creating new knowledge. A number of these efforts have developed into major research projects that have not only helped address a pressing real-world problem but made significant contributions to an academic discipline and to our knowledge of the world" (DeTurck et al., 2022, p. 3). Dr. Lori Flanagan-Cato's partnership with Robeson teachers and Netter staff exemplifies this approach.

Conclusion

Looking across these three cases that involve an undergraduate student, a graduate student, and a faculty member, we found Harkavy's components useful in understanding how each one exemplifies the Netter Center's approach to democratic implementation: focus on place-based local work in the university's geographic community; develop an inclusive approach that involves knowledge possessed "on the ground" by community members; and make democratic implementation the process and goal of the research. We quote again from his 2023 article:

To briefly state my argument for a democratic implementation revolution somewhat differently:

- Locally manifested universal problems cannot be solved without the inclusion and active involvement of community members residing in the locality that is the focus of engagement and study.
- The inclusion and active engagement of community members will result in better, more innovative and transformative research, as well as better, more decent, and just universities, communities, and societies.
- Democratic, place-based implementation research projects that are carried out with community members and focus on locally manifested universal problems form a promising strategy to help transform research universities, increasing their contribution to knowledge and the continuous improvement of the human condition. (Harkavy, 2023, pp. 56-57)

This article provides concrete examples from the Netter Center of democratic, place-based implementation research projects that involve ongoing collaboration between university faculty, staff, students, and community members. In addition, the examples emphasize the significance of having sustained "place-based" work occur with specified neighborhood organizations. There is a growing body of literature that supports this approach. To cite just two examples: Yamamura & Koth (2018) define *"place-based community engagement* in higher education as a long-term university-wide commitment to partner with local residents, organizations, and other leaders to focus equally on campus and community impact within a clearly defined geographic area" (p. 18); and Dostilio et al. (2019) describe a growing number of "hyperlocal engagement" efforts at the neighborhood scale that seek to contribute to community development goals and also enhance institutional ability to deeply and strategically engage. For the Netter Center, place-based hyperlocal work has occurred for over 30 years with university-assisted community schools (UACS) in West Philadelphia, which we have found to be a particularly effective organizing strategy (Benson et al., 2017).

Based on the case studies, it appears, however, that Harkavy's call for a democratic implementation revolution would have benefited from a discussion of how that implementation might actually take place. The Netter Center has built its organizational infrastructure and capacity over time so that the Center increasingly functions as a significant implementation arm for the university's engagement with the local community.[9] Netter staff in general are deeply engaged with faculty and students and help to facilitate the active involvement of community members in their research projects — from problem identification through the development and implementation (including the ongoing assessment) of solutions (Greenwood, Whyte, & Harkavy, 1993). More specifically, the examples in this article illustrate the critical role that Netter's UACS staff play in implementing democratic, mutually beneficial university-community-school partnerships and programs. Netter UACS staff are "on the ground" year-round with community and school partners in a way that university faculty and graduate and undergraduate students cannot be. Their day-to-day efforts, and the trust it builds, enhance the university's ability to work with school and community partners and contribute to meaningful change in its local environment while also advancing research, teaching and learning for students at all levels. This finding is so significant that we believe the implementation role of community-based university staff needs to be identified and highlighted as a powerful means to help realize Harkavy's democratic implementation revolution.

In conclusion, Netter Center's implementation capacity primarily derives from its UACS staff, whose work benefits the schools, the community, and the institution. We are honored to work with and learn from these dynamic colleagues at the Netter Center. Netter's experience, more generally, highlights the role that community and school-based university staff can play as implementors, educators, and knowledge producers who contribute to creating and sustaining mutually transformative university-community partnerships.

[9] For the continued evolution in Harkavy's thinking and the Netter Center's implementation role, see Benson, Harkavy, & Puckett (2000), Benson, Harkavy, & Puckett (2007), Benson et al. (2017), and Harkavy (2023).

References

Aisch, G., Buchanan, L., Cox, A., & Quealy, K. (2017, January 18). "Some Colleges Have More Students from the Top 1 Percent Than the Bottom 60. Find Yours." *New York Times,* A3, www.nytimes.com / interactive/2017/01/18/upshot/some-colleges-have-more-students-from-the-top-1 -percent-than-the-bottom-60.html.

Bellafante, G. (2021, December 10). "Have Urban Universities Done Enough for the Neighborhoods Around Them?," *The New York Times,* www.nytimes.com/2021/12/10/nyregion/urban-universities-neighborhoods.html.

Benson, L. & Harkavy, I. (1991). "Progressing Beyond the Welfare State." *Universities and Community Schools,* 2 (1-2), 2-28.

Benson, L., Harkavy, I., & Puckett, J. (2000). An Implementation Revolution as a Strategy for Fulfilling the Democratic Promise of University-Community Partnerships: Penn-West Philadelphia as an Experiment in Progress. *Nonprofit and Voluntary Sector Quarterly 29*(1), pp. 24-45.

Benson, L., Harkavy, I., & Puckett, J. (2007). *Dewey's Dream: Universities and Democracies in an Age of Education Reform.* Philadelphia: Temple University Press.

Benson, L., Harkavy, I., Puckett, J., Hartley, M., Hodges, R., Johnston, F., & Weeks, J. (2017). *Knowledge for Social Change: Bacon, Dewey and the Revolutionary Transformation of Research Universities in the Twenty-first Century.* Philadelphia: Temple University Press.

Cantor, N. & Englot, P. (2013). "Beyond the 'Ivory Tower': Restoring the Balance of Private and Public Purposes of General Education." *The Journal of General Education: A Curricular Commons of the Humanities and Sciences,* 62 (2-3), 120-128.

Churchman, C. West & Mitroff, I. (Summer 1994). The Management of Science and the Mismanagement of the World. *Knowledge, Technology & Policy,* 7(2), 64-80.

DeTurck, D., Flanagan-Cato, L., Hartley, M., Jackson, J., Lipman, T., & Puckett, J. (2022, June 22). Report of the ad hoc Faculty Committee on community engaged scholarship for the Provost of the University of Pennsylvania. https://www.nettercenter.upenn.edu/sites/default/files/Community_Engaged_Scholarship_report_6-22-22.pdf

Dewey, J. (1900). *The School and Society.* Chicago: University of Chicago Press.

Dewey, J. (1981). *The Public and Its Problems.* In J. A. Boydston, ed., *The Later Works,* vol. 2. *The Collected Works of John Dewey,* 1882–1953. Carbondale: Southern Illinois University Press, pp. 235-372; digitally reproduced in L. Hickman, ed. (1996) *The Collected Works of John Dewey,* 1882–1953: *The Electronic Edition.* InteLex.

Dostilio, L. D., Ohmer, M. L., McFadden, K., Mathew, S., & Finkelstein, C. (2019). Building Community Capacity via Place-Based Hyperlocal Engagement. (pp. 2–30). Towson, MD: Coalition of Urban and Metropolitan Universities.

Flanagan-Cato, L. M. (2019). Everyday Neuroscience: A Community Engagement Course. *The Journal of Undergraduate Neuroscience Education,* 18(1), A44-A50.

Flanagan-Cato, L. M., Plate, R. C., Steele, C. and Jenkins, A. C. (2023). Effects of a Service-Learning Course on Mood and Intergroup Anxiety. *Journal of Undergraduate Neuroscience Education,* 21(2), A159-A165. https://doi:10.5939/HXTQ3326

Freire, P. (1970). *The Pedagogy of the Oppressed.* London: Penguin.

García, K. & Magubane, N. (2023, January 26). Science and Service. *Penn Today.* https://penntoday.upenn.edu/news/penn-netter-center-science-and-service

Greenwood, D. J., Whyte, W. F., & Harkavy, I. (1993). "Participatory Action Research as a Process and as a Goal." *Human Relations,* 46(2), 175-192.

Harkavy, I. (2023). Dewey, Implementation, and Creating a Democratic Civic University. *The Pluralist,* 18(1), 49-75.

Harkavy, I., Cantor, N., & Burnett, M. (2015). *Realizing STEM Equity and Diversity through Higher Education-Community Engagement.* https://www.nettercenter.upenn.edu/sites/default/files/Realizing_STEM_Equity_Through_Higher_Education_Community_Engagement_Final_Report_2015.pdf

Harkavy, I., & Hodges, R. A. (2012). Democratic Devolution: How America's Colleges and Universities Can Strengthen Their Communities. *Progressive Policy Institute.* Policy Memo, 1-11.

Harkavy, I., Hodges, R. A., & Weeks, J. (2021). Towards Creating the Truly Engaged, Responsive University: Penn's Partnership with West Philadelphia as an Experiment in Progress. In C. Brink, ed. *The Responsive University and the Crisis in South Africa.* Boston/ Netherlands: Brill, 47-77.

Harkavy, I. & Puckett, J. L. (1991, Summer). "Toward effective university-public school partnerships: An analysis of a contemporary model." *Teachers College Record 92*(), 556-581.

Lagemann, E. C. (ed.) (1985). *Jane Addams on Education*. New York: Teachers College Press.

Nagel, E. (1979). *The Structure of Science: Problems in the Logic of Scientific Explanation.* Indianapolis, IN: Hackett Publishing.

Schön, D. A. (1985). *The Reflective Practitioner: How Professionals Think in Action.* New York: Basic Books.

Schön, D. A. (1995, November-December). "Knowing-in-Action: The New Scholarship Requires a New Epistemology." *Change,* 27(6), 26-34.

Sharlin, A. N. (1974). "Max Weber and the Origins of the Idea of Value-Free Social Science." *European Journal of Sociology,* 15(2), 337–353. http://www.jstor.org/stable/23998534

Steele, C., Plate, R.C., Lenz, T., Tu, Y., Jenkins, A.C. and Flanagan-Cato, L.M. (2022). I Think You Like Me More Now: Contact with Outgroup Members in an Academic Setting Promotes Positive Meta-Perceptions Over Time. *American Psychological Society* [Abstract].

Sturm, S., Eatman, T., Saltmarsh, J., & Bush, A. (2011). Building the Architecture for Diversity and Community Engagement in Higher Education. Imagining America. https://surface.syr.edu/ia/17

Whyte, W. F. (1989, September 1). "Advancing Scientific Knowledge through Participatory Action Research." *Sociological Forum,* 4(3), 367-385.

Whyte, W. F., Greenwood, D. J., & Lazes, P. (1989, May). "Participatory Action Research: Through Practice to Science in Social Research." In "Action Research for the 21st Century: Participation, Reflection, and Practice," ed. William F. Whyte. Special issue of *American Behavioral Scientist,* 32(5), 513-551.

Appendix A: Problem Solving Learning Framework (PSL)

1) What is the problem?

1.1) What is the **subject**? (i.e. schools, housing, undergraduate education)

1.2) What is the **present condition**?

1.3) What is the desired **future condition** that you will help bring about?

1.4) Who is (given your current thinking) the probable **agent**?

1.5) What **actions** (do you think) the agent could/ should take?

1.6) Who (what) is the **catalyst** to get the agent to take the actions that you think should be taken?

1.7) What **actions** (do you think) the catalyst should take?

2. What do you **now know** about the problem? Why do you care?

3. What things do you **need to know** other than you know right now?

4. How are you going to **find out** what you need to know?

5. Once you find the information you need to find, how will you identify different **possible solutions** to the problem?

6. How will you go about **evaluating different solutions** to the problem? (What will be your criteria for evaluation?)

7. Once you have identified the best solutions, how will you **implement** them?

8. Once solutions are implemented, how will you **monitor** them?

9. After you receive feedback, how will you **evaluate** how well solutions are working?

10. How do you plan to sustain the changes you propose?

11. Be ready to start over.

Appendix B: Recent PSL Paper Titles

Robeson's Youth Society of Engineers (RYSE): In Partnership with the Netter Center at the University of Pennsylvania and Paul Robeson High School

Addressing Low Academic Performance through Culturally Relevant Mentorship: A Cultural Enrichment After-School Program at William L. Sayre High School

The "Civic Ivy"? Changing the Way Penn Presents Community Engagement to Prospective Students Through the Lens of Admissions Programming

Art For All Hands: A University-Assisted Community Schools (UACS) Studio Art Program for High School Students in West Philadelphia to Close the Visual Art Education Gap

Creating a Peer-to-Peer Emotional Wellness Program in Sayre High School

Math and Munch: The Expansion and Development of the Hamilton After-School Math Club

Young Quakers Asthma Training Program: Education and Discussion to Better Support University-Assisted Community Schools Students with Asthma during Young Quakers Practices

The Nursing Accessibility Program: A Collaboration Between the University of Pennsylvania School of Nursing, the Netter Center, and William L. Sayre High School

A New ABCS Course at Penn Engineering: Increasing Computer Science Access for West Philadelphia High School Students

Towards Improving Cardiovascular Health in West Philadelphia: Partnership-Building Between Penn Medicine, The Netter Center and the Community

Increasing Access to Public Benefits in West Philadelphia

Penn-in-Context: Increasing the Civic Engagement of Penn Undergraduates

Netter Center
for Community Partnerships
University of Pennsylvania

UNIVERSITIES AND COMMUNITY SCHOOLS
A Publication of the Netter Center for Community Partnerships at the University of Pennsylvania

Netter Center for Community Partnerships
University of Pennsylvania
3819-33 Chestnut Street, Suite 120
Philadelphia, PA 19104-3171

www.nettercenter.upenn.edu