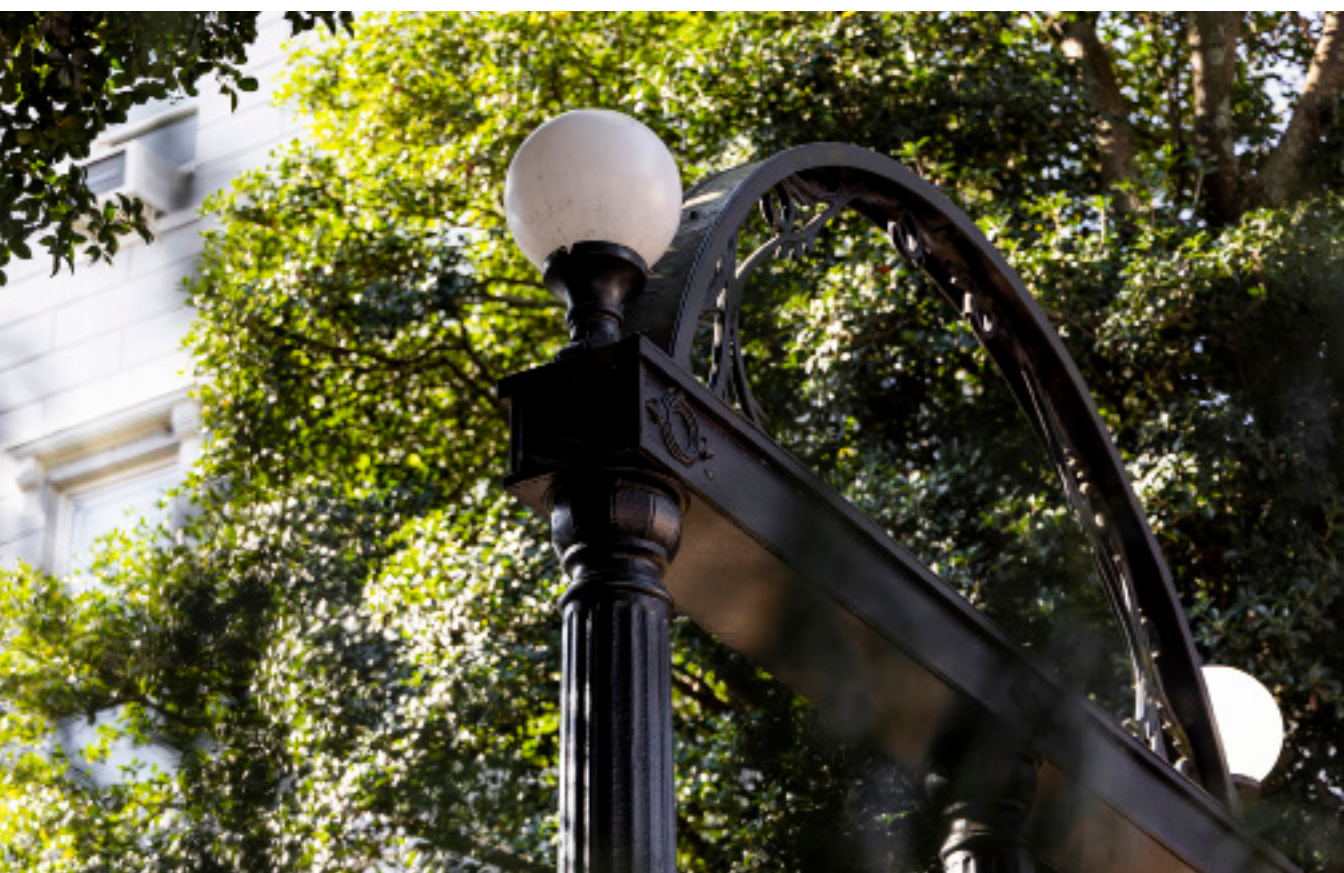




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Journal of Higher Education Outreach and Engagement

UNIVERSITY OF GEORGIA

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TABLE of CONTENTS

Journal of Higher Education Outreach & Engagement

From the Editor	1
------------------------------	----------

Shannon O. Brooks

RESEARCH ARTICLES

Creating and Validating a Stewardship of Place Index for Appalachia...	3
---	----------

Paul M. Garton, Patrick Kelly, and Larry B. Baranowski

Collective Impact for Institutional Reform in Higher Education: A Case Study of UC Davis's Catalyzing Impact Initiative.....	23
---	-----------

Gabriela Kovats Sánchez and Amy Hart

Alumni Perspectives on the Impact of a K-12 STEM Pathway Program: A 20-Year Look Back and Model for the Future	41
---	-----------

Maria Alonso Luaces, Jessica Rodas, Mija Jones, Jo Wick, Sreejata Dutta, Jessica Conchas Contreras, and Margaret Smith

Aspire to Achieve: A Student-Led, Service-Learning Approach for SAT Equity	61
---	-----------

Ngoc-Trang Adrienne H. Nguyen, Nikhila Achanta, and Ayesha Baloch

REFLECTIVE ESSAYS

Beyond Shifting Language in Community Engagement and the Social Services Sector: Reflections and Recommendations	91
---	-----------

Maria Mayan and Samantha Smith

Community Partner Perspectives on Cocreating Strong Relationships With Universities	99
--	-----------

Sanya Cowal, Sidney Madsen, Rebecca Covarrubias, MariaElena De La Garza, Helen Ewan-Storey, Ruben Martin Del Campo, Enrico Ramirez-Ruiz, and Sikina Jinnah

Paradigmatic Shifts in the Study and Practice of Community-Campus Partnerships.....	123
--	------------

Robert G. Bringle, Haden M. Botkin, Jasmina Camo-Biogradlija, Lori E. Kniffin, and Patti H. Clayton

TABLE of CONTENTS *(cont'd)*

Journal of Higher Education Outreach & Engagement

PROJECTS WITH PROMISE

Addressing the Town–Gown Relationship Through Experiential Learning and Placemaking: A Case Study at a Private Liberal Arts College 137

Hamed Goharipour, Ryan Ozar, and Thomas Pitney

Building Capacity for STEM Outreach: Development and Implementation of a University Graduate Certificate in Community–Engaged STEM151

Erin Purvis Conway and Loretta M. Flanagan–Cato

From the Editor...

Shannon O. Brooks



The mission of the *Journal of Higher Education Outreach and Engagement* (JHEOE) is to advance theory and practice related to all forms of outreach and engagement between higher education institutions and communities. This broad approach to community engagement is reflected in this issue's exploration of different dimensions of practice, theories underpinning the work, and a variety of outcomes alongside ways of measuring those outcomes. The diversity of approaches and scholarship is indicative of the growth in our field and influence of different disciplinary and methodological perspectives at work.

Research Articles

In our first research article, Garton et al. explore the stewardship of place, a concept for understanding the responsibility and impact higher education institutions (HEIs) have on regional development. This study presents a quantitative measure of HEIs through the development and validation of a stewardship of place index using publicly available data to communicate the impact of HEIs. Focusing on HEIs within the Appalachian Regional Commission (ARC), the authors describe ways the index can augment or replace other measures of institutional engagement, such as the Carnegie Community Engagement Classification, while offering critiques of existing measures.

In our next research article, Sánchez and Hart explore how universities can employ the collective impact framework to spur cultural change from within through the Catalyzing Impact Initiative at the University of California Davis. During preparation for the 2026 Carnegie Community Engagement reclassification, university staff used this self-study to establish three working groups around a collective impact framework focused on community partnership, assessment and integration, and communication and messaging. Survey findings and focus group data from working group members inform this case study, providing ideas for other institutions interested in exploring

collective impact to spur internal cultural and organizational change around community engagement.

Shifting focus, our next two research articles present studies of the impact of K-12 and university partnerships on youth participants. First, Luaces et al. explore the impact of the Saturday Academy (SA) on program alumni. SA is a STEM-focused enrichment program of the K-12 Initiative, which is a partnership between a university, community college, and public school district in Kansas focused on increasing access to health and STEM professions. Over 20 years, SA has served underrepresented students in primarily urban schools. This study examined SA's four areas of emphasis: career literacy and awareness, personal development, socioemotional learning, and access to resources, providing insight into developing a STEM pathway program using the SA model for student support.

Nguyen et al. explore the impact of Aspire, a SAT tutoring program aimed at students from a low-income urban high school. Over a five-year period with nine student cohorts, undergraduates at the University of Houston delivered an intervention designed to expand access to SAT preparation for economically disadvantaged students. Findings showed a positive effect on participating students' SAT scores, demonstrated a promising model for a service-learning program to improve SAT scores for students ordinarily priced out of SAT prep services, and indicated a positive impact on their long-term educational trajectory.

Reflective Essays

The Reflective Essays section features thought-provoking pieces highlighting innovative programs and research approaches with strong potential for producing future scholarship and offering initial findings to improve community-university engagement. In our first featured essay, Mayan and Smith explore discourse around non-stigmatizing language and its influence on community engagement principles and

practice when working with diverse communities, including people with lived experience (PWLE). This essay is a helpful primer on nonstigmatizing language and why its use matters. The authors challenge readers to consider who benefits from shifting language use and whether it truly represents principles of community engagement, such as reciprocity, shared knowledge, and collaborative decision-making with PWLE. This essay suggests best practices for scholars and practitioners to move beyond a surface focus on language to using language as a tool for reciprocal community engagement.

Next, Cowal et al. distill university-community partnership principles through a process combining an examination of current scholarly literature with dialogue between a community-based organization and faculty at the Center for Reimagining Leadership (CRL) at the University of California, Santa Cruz (UCSC). This essay provides a thoughtful model prioritizing dialogue between community and university representatives about the scholarship of partnerships in order to create closer alignment between scholarship and practice. Based on this process, the authors present a set of updated partnership principles that center community partner voices and build upon established scholarship to deepen our understanding of the role of relationships in partnerships.

Finally, our last Reflective Essay was previously published in Spanish and is being reprinted in English with permission. "Paradigmatic Shifts in the Study and Practice of Community-Campus Partnerships" tracks historical shifts in service-learning with a focus on ways community-campus partnerships have been conceptualized and examined. Bringle et al. use the Transformational Relationship Evaluation Scale (TRES) reflection framework as a tool for exploring the quality and understanding of community-campus partnerships, issuing a call for more rigorous inquiry into these partnerships across their many forms and cultural contexts.

Projects with Promise

The Projects with Promise section features

emerging practices and programs accompanied by early- to mid-stage findings and considerations for future scholarship and implementation. Articles in this issue explore strategic approaches to town-gown relationships through experiential learning and the preparation of STEM graduate students in community-engagement.

Goharipour et al. explore a vital component of town-gown relationships, the importance of placemaking for campus-community relations. The Applied Methods and Research Experience (AMRE) is a consulting program operated by the College of Wooster for 30 years that pairs undergraduate students, faculty, and staff with external organizations on summer projects. AMRE conducted a mixed-method case study analysis using community interviews and input processes. From these conversations and feedback, seven key themes emerged for strengthening town-gown relationships, leading the authors to propose four key strategic approaches that campuses and communities can employ to strengthen their engagement activities.

In "Building Capacity for STEM Outreach: Development and Implementation of a University Graduate Certificate in Community-Engaged STEM," Conway and Flanagan-Cato describe and analyze the development of a university-wide graduate certificate in community-engaged STEM at the University of Pennsylvania (Penn). They explore the rationale, need, and benefits of the program, and the process of creating the Community-Engaged STEM Certificate Program, along with competencies and plans for measuring the impact. This article provides a roadmap for other Research universities seeking to address public engagement in STEM fields and better prepare graduate students in community-engaged methods.

Producing an issue of *JHEOE* requires the collaboration and service of many individuals. We extend our gratitude to the authors, associate and managing editors, reviewers, and editorial team whose dedication makes the continued publication of the journal possible. We appreciate your interest in this scholarship and thank you for your continued readership.



Creating and Validating a Stewardship of Place Index for Appalachia

Paul M. Garton, Patrick Kelly, and Larry B. Baranowski

Abstract

Quantitative analyses of the social and economic roles of higher education institutions are limited by the lack of an institutional-level measure of regional engagement. One way to conceptualize regional engagement is through stewardship of place, or the technologies and work by postsecondary institutions that contribute to regional economic and community development. This study creates a measure of stewardship of place, the Stewardship of Place Index, that relies entirely upon publicly available data. The final index comprises three dimensions: Education, Research, and Regional Needs. We validate the index through a series of qualitative and quantitative steps. The instrument can be used by institutions for benchmarking, assessment, and communicating work to stakeholders, and it can be used by researchers to analyze the role of postsecondary institutions in regional development. Additional findings highlight data limitations and major shortcomings of the Carnegie Community Engagement classification.

Keywords: stewardship of place, community engagement, economic development, community development



Higher education institutions (HEIs) in the United States shape and are responsible for the spaces they inhabit, fostering a sustainable and equitable future for all stakeholders involved. They serve as engines of opportunity and economic prosperity for students, families, and communities. In essence, they must be stewards of place. *Stewardship of place* is a concept that orients higher education community engagement as inherently place-based, implying HEIs have a moral obligation to be involved in their region's community and economic development (Orphan & McClure, 2022; Saltmarsh et al., 2014). We define stewardship of place as the technologies and work by postsecondary institutions that contribute to regional economic and community development. The phrase arose in the higher education community in 2002 as part of a movement initiated by the American Association of State Colleges and Universities (AASCU). Whereas flagship, land-grant, and community and

technical colleges tended to have more clearly defined missions beyond the academic functions of their institutions, AASCU set out to delineate and communicate the importance of local engagement in the mission and vision of regional public colleges and their effects on the communities they serve.

Much has changed in the political and fiscal environments in higher education over the past two decades. Among the most impactful are (1) steadily declining state resources to public higher education and more institutional reliance on tuition and fees, and (2) increasing pressure from state and local leaders to meet local workforce demand and serve as economic engines in meeting broader community, regional, and statewide needs. In order to make their case to policymakers and stakeholders, or even to secure future existence for some, it has become imperative for many colleges and universities to be locally engaged and to be able to effectively communicate the regional impact of the institution on students' lives

and the workforce, economy, and health of the community.

Quantitative analyses of the social and economic roles of HEIs in regional development are notoriously limited, however, largely because there is no clear, identifiable treatment variable. Consider the three broadly accepted missions of HEIs: education, research, and community engagement. Research on the relationship between the educational mission of HEIs and economic development is the most well-developed, with a rich history of literature on wage premiums of a postsecondary degree (Arteaga, 2018; Ost et al., 2018; Psacharopoulos, 1991). The research mission's relationship to development is less clear, focused mainly on patent generation near research universities (Andersson et al., 2009; Kantor & Whalley, 2014), and quantitative literature on the effects of community engagement is scant. As interest grows for HEIs to be engaged in their regional economies and good stewards of place for their communities, being able to measure an HEI's contribution will be an essential part of the conversation.

In order to develop sound strategies and to obtain and provide stakeholders comparative information, higher education professionals need better quantitative data, measures, and indices. These data and metrics are particularly essential for regions with relatively low incomes, poor health outcomes, and/or low educational attainment, as HEIs in these regions look for ways to solve local problems. The Appalachian Mountains, as defined by the Appalachian Regional Commission (ARC), is such a region and will serve as the bounds for this initial validation project.

This study aims to develop and validate an organizational-level measure of stewardship of place, comprised of several data elements and measures, that can then be used both by HEIs to evaluate their own regional engagement and by researchers to estimate the relationships between HEIs and regional development. The objectives of this project are thus (1) to design an index measuring stewardship of place at an organizational level using publicly available data and (2) to validate and revise the index through a combination of qualitative and quantitative tests. This article contributes to the study of university-community engagement by offering a transparent, replicable quantitative measure that can supplement other initiatives to capture and communicate the work of HEIs.

Literature Review

There is growing demonstrated interest in HEIs as stewards of place in their regions. This interest is associated with declining public trust in higher education. HEI leaders seek ways to demonstrate the value of colleges to legislators and families, with community engagement often positioned as a solution (Fischer, 2023). AASCU has also reinvigorated the stewardship of place conversation recently, having published a series of reports on stewardship of place meant to update the concept for the middle of the 21st century (McClure & Orphan, 2023; McClure & Vaidya, 2023; Orphan & McClure, 2022).

Much literature around postsecondary institutions and local development uses the conceptual frame of anchor institutions (Garton, 2023; Porter, 2016). This frame begins with the assumption that certain types of organizations, almost always universities and hospitals, are incredibly unlikely to move locations and thus are reliable sources of regional economic stability. Anchor research then analyzes the economic contributions of institutions from their day-to-day operation. Colleges and universities act as anchors in their communities not necessarily because of anything unique about their mission or contributions to society, but because they employ large numbers of people, spend large amounts of money, and bring foot traffic to specific areas (Garton, 2021). Being an anchor institution does not necessarily imply any intentionality on the part of the institution—purely through its existence, the institution will shape the local economy.

Stewardship of place differs from the anchor framework in two main ways. First, stewardship of place goes even further than assuming intentionality, to the point of conceptualizing local engagement as a moral obligation. Second, the anchor literature is largely focused around urban development, and with good reason given the hyperlocal nature of projects like real estate development. Stewardship of place, however, allows for broader geographical applications, particularly important for the largely rural Appalachian setting of this study.

Stewardship of place conceptualizes local engagement and development as a moral obligation, not just a footnote to an HEI's mission or a strategy to generate goodwill. This obligation originates in an ontological lens of existence, freedom, and vocation as

being fundamentally contingent upon place and community (Sweeden, 2023). If place is so central to the very media through which we experience our lives, then there must be some degree of investment in shaping place. When HEI and community partners commit to place, the involved individuals tend to develop moral perspectives tied to place (Ryan et al., 2023). The social construction of place is no longer purely local, involving larger cultural dynamics informed by forces like globalization (Dymnicka, 2010). In the case of Appalachia, communities formed identities in a history of exploitation and collective action, the economic downturn of deindustrialization from globalization, and a general respect for natural settings (Reid, 2005).

Within this context of stewardship of place as a core moral obligation for institutions and of place as an evolving concept that extends beyond our immediate surroundings, HEIs in rural settings are well poised to use stewardship of place as a guiding frame. HEIs engaging in such an approach can support multiple organizations across rural regions like P-12 schools, small businesses, and other local civic organizations (Johnson et al., 2009). Rural HEIs also serve as anchor institutions, often being among the largest employers and offering valuable services that are otherwise inaccessible in rural regions (Orphan & McClure, 2019). Aspects of HEIs that scholars have analyzed using the lens of stewardship of place include publicly accessible libraries (Stover, 2016), education geared toward tackling local problems (Doordan, 2015), and education to provide income stability as well as social mobility in local spaces independently of global economic conditions (Oleksiyenko, 2013).

Measuring Stewardship of Place

Despite the enormous interest in the topic, stewardship of place is difficult to measure in a way that can be easily scaled to a large number of HEIs. One flawed approach would be to use public service expenditures from the Integrated Postsecondary Education Data System (IPEDS), which reduces the concept to activities not already captured within instructional and research expenses. Assuming community engagement is conceptualized as cutting across teaching and research (Fitzgerald et al., 2012), relying solely on public service expenditures would miss perhaps even most of the engaged work performed by an HEI. For example, any credit-bearing courses meant to fill regional

needs would be captured under teaching expenditures, not public service. Public service expenditures are thus only part of the story.

Another potential way to quantitatively measure stewardship of place is with a binary variable: Either the HEI is an engaged institution, or it is not. This approach is essentially how the Carnegie Classification for Community Engagement measures engaged institutions, distilling long, qualitative applications into a yes/no measure. The issue with a binary indicator is that it loses vast amounts of information around dosage. A deeply engaged HEI devoting millions of dollars to regional problems may be placed in the same category as a small, cloistered college doing good but limited outreach. A continuous measure would be able to distinguish among magnitudes.

A third way researchers have attempted to capture HEI contributions to regional development is with economic impact reports. These reports use a variety of methods, like estimating wage premiums for graduates; amount of money students, faculty, and staff spend at local businesses during the school year; and operational expenses of the organization that contributed to the local economy. The results of such reports are of dubious quality. First, the estimates of wage premiums are rough, and regional impact is usually estimated by adding a multiplier, which may be untethered from any meaningful local context. Second, the focus on operational expenses conflates expenditures with impact, offering little to no consideration for who made the initial payments. Especially in the tuition-dependent environment of higher education today, high expenditures do not necessarily equate to equitable regional development.

Therefore, given the growing interest in stewardship of place and the current shortcomings of quantitative measurements, the fields of higher education and the scholarship of engagement stand to benefit greatly from a methodologically rigorous, quantitative measure of stewardship of place. Such a measure will be useful to HEIs as they look for ways to demonstrate their worth to legislators and families, establishing the institutions as working toward the public good. The measure will be invaluable for scholarly analysis to understand the relationship between HEIs and regional development, as it can be used as an independent variable to predict different regional outcome variables like income, population growth, and health

indicators. Finally, by using publicly available data to construct the measure, it can be scaled cheaply across a large number of HEIs beyond just the ARC service area analyzed in this study. Staff at interested HEIs will not need to launch expensive surveys to apply the measure to their own campuses, and researchers can easily shift the population of interest without new, costly data collection beyond any contextual revisions.

Methods

The project progressed through three successive stages: (1) Create the initial stewardship of place index following Wilson's (2005) four building blocks approach to construct modeling, (2) evaluate construct validity of the index through a focus group with community engagement leaders and an interview with a faculty expert, and (3) evaluate criterion validity and reliability through quantitative tests.

Sample Selection

We limited our sample to HEIs within the ARC service area for three methodological reasons. First, the ARC service area is large and diverse though with well-defined boundaries, encompassing parts of 13 different states (ARC, 2015). See Figure 1 for a map of all counties within the ARC service area. This wide coverage across so many legislative jurisdictions ensures our sample includes institutions with different missions, sizes, and funding models. Second, despite the geographic diversity of the region, it also shares a cohesive cultural and economic context of similar industries and community challenges (Pollard et al., 2023). Stewardship of place in one cultural and economic setting might look very different than in another. This initial validation project avoids introducing too much variation by focusing on one context, albeit a large and diverse context. Third, focusing on the ARC service area allowed us to test and refine the index in a region without major spatial confounders of dense populations and economic activity. Global megacities like those in southern California, or New York City, could disproportionately influence the index due to their size, number of HEIs, and economic complexity. Limiting our sample to the ARC service area thus provides a diverse yet cohesive setting in which to develop the index. Finally, from a pragmatic standpoint, Appalachia's workforce needs and historical education attainment deficits

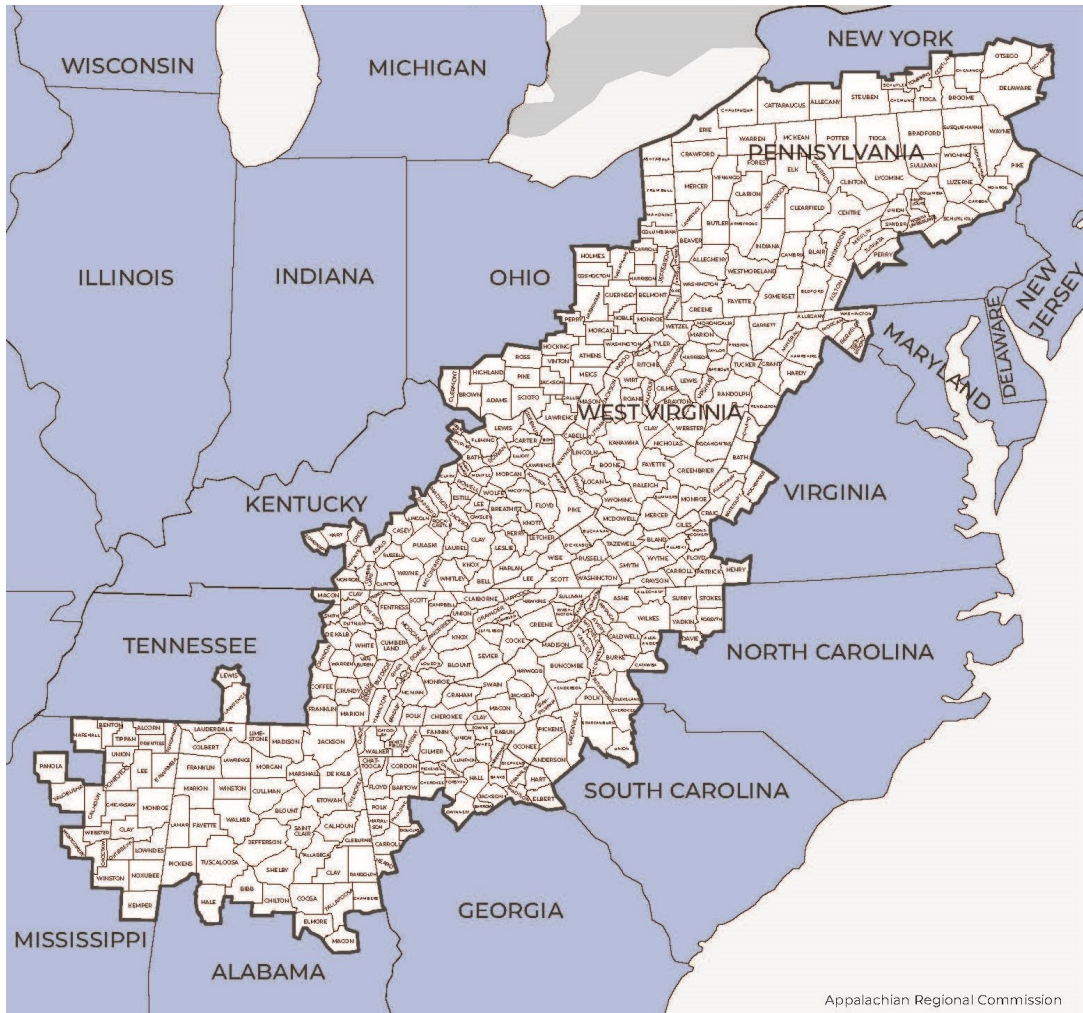
(Pollard et al., 2023) necessitate new ways of thinking about higher education and measuring inputs, outcomes, and work. By focusing on the Appalachian region in the validation phase, the tool will be more likely to be useful to HEIs in Appalachia.

The final sample size included 559 institutions: 238 were 4-year institutions, 174 were 2-year institutions, and 147 were less-than-2-year institutions; 246 were public institutions, 167 were private not-for-profit, and 146 were private for-profit. Of these institutions, 29 were in New York, 154 in Pennsylvania, 53 in Ohio, 72 in West Virginia, five in Maryland, 24 in Kentucky, 19 in Virginia, 56 in Tennessee, 37 in North Carolina, 23 in South Carolina, 11 in Mississippi, 45 in Alabama, and 31 in Georgia.

Construct Modeling

Wilson (2005) recommended a four-step process in construct modeling. First, create the construct map. A construct map identifies the different dimensions of the construct, the opposing extremes of each dimension along continuous scales, and qualitative levels within each continuous scale. This stage is drawn from theory. Second, create the items. The third step, the outcome space, is the process through which the items are converted into scores. Finally, the measurement model step is the process through which all the scores are combined into the final measure.

To build the construct map, we relied heavily upon the stewardship of place reports from AASCU, literature on place-based community engagement and economic development, and the literature on the scholarship of engagement. As our point of departure, we used Orphan and McClure's (2022) summary and Doberneck et al.'s (2010) typology to guide our identification of the dimensions. Both Orphan and McClure and Doberneck et al. organized their discussions along the lines of education, research, and community engagement, so those were the three dimensions we used as our starting point. Although different HEIs and academic disciplines use a variety of terms to refer to this third dimension (e.g., public scholarship, outreach, societal impact), we follow Doberneck et al.'s approach of using the word "engagement" as a catchall term for activities involving community partners to tackle societal problems. Based on the construct map, we identified publicly available data through IPEDS (National Center

Figure 1. Map of ARC Service Area

Note. ARC service area by county. From *Appalachian Region*, by the Appalachian Regional Commission, 2021 (<https://www.arc.gov/wp-content/uploads/2021/11/Appalachian-County-Map-1.pdf>). Reprinted with permission.

for Education Statistics, 2026), College Scorecard (U.S. Department of Education, 2026), and the Higher Education Research and Development Survey (HERD; National Center for Science and Engineering Statistics, 2026) that serve as indicators of where the observations fall on the construct map. For example, one of the measures within teaching as stewardship of place was graduation rates weighted by the number of Pell-eligible students. Part of research was the percentage of research expenditures spent on nonbasic research, and part of service was the percentage of total expenditures spent on public service.

The outcome space step is more pertinent to psychometric style measures without inherent numeric values, so the third step related only circumstantially. For example, we

weighted graduation rates by the proportion of students that were Pell eligible, so this is the step at which we made those decisions. Most of the included variables were already numerical, however, and required no additional coding.

We standardized all the different scores and ran a principal component analysis (PCA) to identify shared variance across different dimensions. Ideally the dimensions would align conceptually with the dimensions we identified in Step 1 of Wilson's (2005) construct modeling; however, results of the PCA serve as an additional form of evidence as to what the dimensions should be. Finally, based upon the factor loadings within the dimensions that variables fit within the best, we weighted the standardized scores using the factor loadings, then combined

the weighted scores through a linear combination. This procedure results in a single continuous score that in isolation is near impossible to interpret, but in relation to the overall distribution of the Stewardship of Place Index will indicate position and dosage. Applying the index retroactively to previous years also enables longitudinal analyses, another benefit of relying solely upon publicly available data.

Validation Procedures

The next step was to convene a focus group via Zoom of four HEI community engagement leaders to evaluate the construct validity of the measure. This focus group was held in early July 2024. Participants were identified by drawing a random sample of HEIs from the population of all Title IV–eligible HEIs in the ARC service area, stratified by institution type to ensure different sectors were represented. We browsed each HEI’s website to find the chief engagement officer and contact information. If none was found, the HEI was removed from the sample. The primary goals of the focus group were to determine whether the measure captured all the dimensions of stewardship of place, whether the measure captured all the potential variation in stewardship of place, and whether the construct map resonated with the participants’ experiences and expertise (Fowler, 2014; Remler & Van Ryzin, 2021). After the focus group’s evaluation, we made reasonable recommended changes, then shared the construct map and measurement model with a faculty member with expertise in the scholarship of engagement. Our inclusion criteria for the faculty were having published at least one peer-reviewed article on HEI community engagement and being active in the field. We conducted a Zoom interview with this faculty member, with the goals of the interview being the same as those of the focus group. Following the faculty response, we again made reasonable recommended changes.

Finally, using the final measurement model, we built a data set for the Stewardship of Place Index including all Title IV–eligible HEIs in the ARC service area. We used the final data set to evaluate the criterion validity and reliability of the index through a series of quantitative tests by ensuring the index is correlated with related measures. For example, we would expect public 4-year institutions to have a higher score on the index than other sectors, assuming AASCU’s identification of stewardship of place as a

defining feature of such institutions is correct. We ran a *t*-test in which the predictor variable was whether the HEI is a public 4-year or not, and the outcome variable is the index. We tested reliability using test-retest. By using publicly available data, we can calculate index scores across multiple points in time. An HEI’s score at one point in time should be tightly correlated with its score at another point in time, the desired test-retest result. We received approval to conduct this study from the East Tennessee State University Institutional Review Board, University IRB ID# c0624.7e.

Results

The first draft of the index developed through the literature review is presented in Table 1. We made revisions and tested the validity and reliability of the index through a series of qualitative and quantitative procedures, described in detail here.

Qualitative

After developing the first draft of the index, we convened a focus group of chief engagement officials at Title IV–eligible institutions within the ARC service area. The final sample included four engagement officials (identified with pseudonyms) at four different institutions, with four different Carnegie Basic Classifications (American Council on Education, 2026) and in four different states. Our focus group members and their institutions’ classifications were Hazel at a Master’s Colleges and Universities: Medium Programs (Masters/M), Charley at a Master’s Colleges and Universities: Larger Programs (Masters/L), Mandy at a Doctoral/Professional Universities (DU), and S.G. at a Doctoral Universities: Very High Research Activity (DU/R1). Three of the represented institutions were public, and one was private not-for-profit.

Overall, the participants confirmed the face validity of the index. When asked if they saw their work and priorities reflected in the index, Charley (Masters/L) said, “I do see our work reflected” and “I think you have captured the big categories,” prompting S.G. (DU/R1) to say, “I agree, I agree.” S.G. elaborated,

I do just want to say this is absolutely much needed. It’s talked about in almost every discussion I have in various situations that we definitely need to get a better handle

Table 1. First and Second Drafts of the Stewardship of Place Index

First Draft		
Education	Research	Community engagement
Graduation rate weighted by percentage of Pell grant recipients (IPEDS)	Research/scholarly doctoral degrees awarded (IPEDS)	Carnegie Community Engagement Classification designee (American Council on Education)
Pell Grant recipient graduation rate (IPEDS)	Percentage of nonbasic R&D conducted (NSF HERD)	Public service expenditures (IPEDS)
Non-Pell Grant Direct Subsidized Loan or Stafford Loan recipient graduation rate (IPEDS)	Percentage of awards passed through to nonprofit subrecipients (NSF HERD)	Number of public service FTE staff (IPEDS)
Percentage of in-state students (IPEDS)		
Median earnings (College Scorecard)		
Selectivity weighted by competitiveness of other institutions in the region (IPEDS)		
Offers at least one program with the highest enrollments in that field in the region (IPEDS)		
Additions/Changes Following Qualitative Steps		
Percentage of students in health/education majors (IPEDS)	Professional terminal degrees awarded (IPEDS)	Public service expenditures as percentage of total (IPEDS)
Minority Serving Institution (NASA)		Public service FTE staff as a percentage of total (IPEDS)
		Publicly accessible museum (IMLS)
		Publicly accessible library (IMLS)

on how we see our institutions doing what they do and if it is directed to the community in appropriate ways using community voice. So I think this is a tool for that.

Both Charley and S.G. agreed the index appears to be measuring what it is intended to measure—the amount of work at an institution dedicated to engaging local stakeholders in community and economic development. S.G. also spoke directly here to the practical utility of the measure for practitioners, though in so doing also identified a clear limitation of the tool in itself. The measure does not incorporate perspectives of community partners. This absence results partly from a lack of data availability, and partly because the intent of the index is to capture dosage of institutional actions.

The data availability issue came up repeatedly in the focus group as participants described their priorities; however, our collaborative efforts with the participants failed to ascertain publicly available indicators. The vast majority of technologies and work described by the participants for which we were unable to identify suitable measures fell into academic community engagement activities. For example, Hazel (Masters/M) asked, “How do you capture faculty and staff involvement . . . for example, on nonprofit boards?”

Participants also discussed engaged and experiential learning as being an important source of community engagement that is not easily measured at a national level. Hazel (Masters/M) said, “Student teaching is a service to the community.” Hazel also brought up an example of engaged

scholarship conducted by a colleague that involves people in substance abuse recovery participating in a community arts ensemble. This is an incredibly pertinent project given the opioid epidemic in the part of Appalachia in which Hazel's institution is located, though it is not measured in a way that is easily scaled or publicly accessible.

Mandy (DU) also emphasized, "One of the things that we focus on a lot at our institution is our partnerships. . . . I'm pulling in . . . business partnerships and looking at how student experiences are shaped by our partnerships. . . ." Even constructs as easily quantifiable as the number of formal partnerships or the number of students involved in community-embedded internships or federal work-study are not measured clearly at a national level.

Charley (Masters/L) also brought up the economic impact of day-to-day operations along the lines of the anchor literature. Although some measures do exist that roughly estimate expenditures of all anchor institutions in metro areas, these measures do not disaggregate at the institution level and do not include areas that fall outside metro areas, thus are not as useful for rural-serving institutions. For the Stewardship of Place Index, the relative dearth of standardized data on partnerships and engagement is a clear limitation. To speak to the state of higher education data broadly, we measure what we value. If policymakers are concerned about the role of HEIs in regional development, they should seriously consider incorporating indicators of community partnerships and engaged scholarship in national surveys such as IPEDS and the HERD, or even at the state level.

Finally, participants were generally skeptical about the Carnegie Community Engagement Classification because of the resource intensity involved in the voluntary application. Mandy (DU) said,

We as an institution decided not to renew [the Carnegie classification] because we're doing the work already. . . . We put years of work into putting this application together . . . but it hasn't been a big thing on any of our grant applications or anything like that.

Charley (Masters/L) agreed and shared a similar sentiment at his institution, saying,

"We're in exactly the same boat. . . . We're so laser-focused on what actually moves the needle for students." Although participants generally agreed the self-study aspect of the classification was valuable, their institutions did not have the resources to dedicate to such an in-depth application on a regular basis, particularly since receiving the designation did not seem to be useful for enrollments or even grant applications from the engagement offices. Additionally, community colleges are dramatically underrepresented in the classification. As will be seen in the next section, the PCA supports the arguments of the participants. No component loaded on receiving the Carnegie classification in a theoretically coherent manner.

After the focus group, we conducted an interview with a faculty expert in university-community engagement, Christiana (pseudonym). Similar to the focus group, Christiana was concerned about resource disparities between institutions that would be reflected in the index, as opposed to a proportional commitment of resources to stewardship of place. The resource intensity of the engagement classification was one example. Two other variables Christiana critiqued were the public service expenditures and the public service full-time equivalent (FTE) variables. In the initial draft of the index, these variables were measured as raw frequencies. Christiana said,

With the public service expenditures, that is a very resource dependent variable. [You could make] it as a percentage of overall expenditures instead of just a whole dollar amount because . . . it gives you more of a sense of how much of an institution's budget that they're devoting. Let's say, a Florida International University, which is a huge institution, huge budget. They're going to blow all these other smaller regional publics out of the water with their public service expenditures. . . . And I would say, similar with the number of public service FTE staff maybe consider making that a percentage of overall staff.

As a result of these suggestions from Christiana, we revised the public service expenditures and public service FTE variables to be percentages of overall expenditures and overall staff.

Christiana made four other suggestions we incorporated. First, we replaced the variable that the school had the highest enrollments in at least one field in their region with a variable measuring the percentage of students who majored in health or education. As Christiana argued, “Another way to think about . . . education and workforce development could be in the health sciences and then also teacher education, because those are two major ways that they contribute to the local workforce.” Whereas the previous variable was unconcerned with workforce alignment, or at best assumed market demand from students for a major indicated workforce demand in that field, this suggestion moves toward measuring majors with concrete workforce implications, particularly in today’s environment of high demand for medical professionals and teachers.

Second, we included an additional variable measuring the number of professional terminal degrees awarded (e.g., PsyDs, MDs, or JDs), not just scholarly degrees (e.g., PhDs, EdDs) that had been considered in the first index. Christiana suggested, “Maybe [PhD students] would stay in the region, but my guess is that they’re going to go try and find an academic job or a research focused job . . . whereas if it’s a professional doctorate . . . they probably would be more likely to stay in the region.”

Third, we included a binary indicator of whether the HEI was designated as a Minority Serving Institution (MSI) using the National Aeronautics and Space Administration MSI database (NASA, 2026), and fourth, we included two binary variables indicating whether the HEI had a publicly accessible museum and/or library using data from the Institute of Museum and Library Services (IMLS, 2018) and IPEDS. Based on the recommendations from the focus group and the interview, we created the second draft of the Stewardship of Place Index. Additions and revisions from the qualitative procedures are presented in the bottom half of Table 1.

Quantitative

After creating the second draft, we built a data set including all Title IV-eligible institutions in the ARC service area, including all of the variables in Table 2, for a final sample size of $n = 559$. Data from IPEDS were collected using its Access Database (NCES, 2026). Data from NSF HERD (National Center for Science and Engineering

Statistics, 2026) were web-scraped with the Beautiful Soup Python library (Version 4; Richardson, 2007) per annum, then combined. CollegeScoreCard data were accessed via the CSC API and then combined locally (U.S. Department of Education, 2026). Data from NASA and IMLS were coded and combined locally. We used Python 3.10.6 and Stata for all data validity checks, cleaning, and wrangling.

We then standardized the variables and ran a PCA, limiting the number of components to four based on visual analysis of a scree plot (see Figure 2). For the factor loadings, see Table 2. Though our initial dimensions derived from the literature review were education, research, and community engagement, our final dimensions were determined by the different components identified in the PCA. We determined which variables to retain and which component to assign them to following a two-step process. First, we assigned each variable to the dimension with which it had the strongest correlation in absolute terms, following the prescriptions of Jolliffe (1972, 1973). Second, we evaluated each variable for conceptual coherence within that dimension in terms of both overall fit (i.e., the variable is directly measuring some aspect of the dimension) and whether the direction of the sign made conceptual sense based on expectations from the literature review. If a variable did not meet these criteria for conceptual coherence, we dropped that variable from the index. We also retained only components with at least three remaining variables at the end of this process.

Based on the results of the PCA, we made several changes to the index. First, though this does not necessarily change the final values of the index itself, we changed the construct map to reflect the new dimensions identified by the analysis. The education variables, specifically the three graduation rate variables, heavily mapped onto a single component, which we kept as Education. The number of research degrees produced and the percentage of nonbasic R&D expenditures both mapped onto a single component, but so did having a publicly accessible museum. We referred to this dimension as Research, despite shifting the museum variable over. The third component, referred to in Table 3 as Component 3, did not have at least three variables that mapped onto it in a coherent way, so we did not include this component in our final

Table 2. Factor Loadings for the Stewardship of Place Index

Variable	Research	Education	Component 3	Regional Needs
Grad rate weighted by Pell	-.07	.53 ^a	-.07	-.03
Pell grad rate	.19	.52 ^a	-.08	-.07
DSL grad rate	.18	.47 ^a	-.08	-.08
In-state	-.32	.00	.38	-.01
Median wage	.37	-.09	-.16	.08
Selectivity	-.35	-.06	.29	.07
Health & education majors	-.11	.19	.09	.31 ^a
Minority Serving Institution	.08	-.10	-.18	-.03
Research doctoral degrees	.34 ^a	.03	.25	.29
Nonbasic R&D	.31 ^a	-.02	.25	-.12
Grants passed through to nonprofits	.25	.00	.39	-.36
Professional terminal degrees	.30	.03	.30	.32 ^a
Public service expenditures	.13	.03	-.33	.05
Public service FTE	.17	-.01	.29	.44 ^a
Carnegie Engagement Classification	.10	.02	.31	-.58
Museum	.31 ^a	-.16	-.08	-.05
Publicly accessible library	.20	-.39	-.16	-.08

Note. ^aThe variable was included in the final index.

index. Component 4 included health and education majors, professional terminal degrees produced, and the public service employee variables. We named this dimension Regional Needs. All other variables were dropped from the index, as the dimension to which they were most highly correlated did not make conceptual sense. We then conducted the PCA procedure again, including only the nine final variables. This final PCA confirmed the same structure, with three components with eigenvalues greater than 1, and identical conceptual groupings under each component. See Table 3 for the final list of dimensions and variables, and see Table 4 for the final loadings. To further explain the operationalization of the index,

we summarize below how each retained indicator represents stewardship of place in the ARC context.

The three variables under the Education dimension aim to measure the social mobility aspect of postsecondary education by evaluating student success while also rewarding HEIs that serve students who are eligible for federal financial support. The index does not directly measure whether students are from the Appalachian region for two reasons. First, publicly available data do not measure student residence at the county level, only in-state or out-of-state. Second, the percentage of in-state students did not load onto any of the components in a meaningful

Figure 2. Scree Plot of Variables After Principal Component Analysis

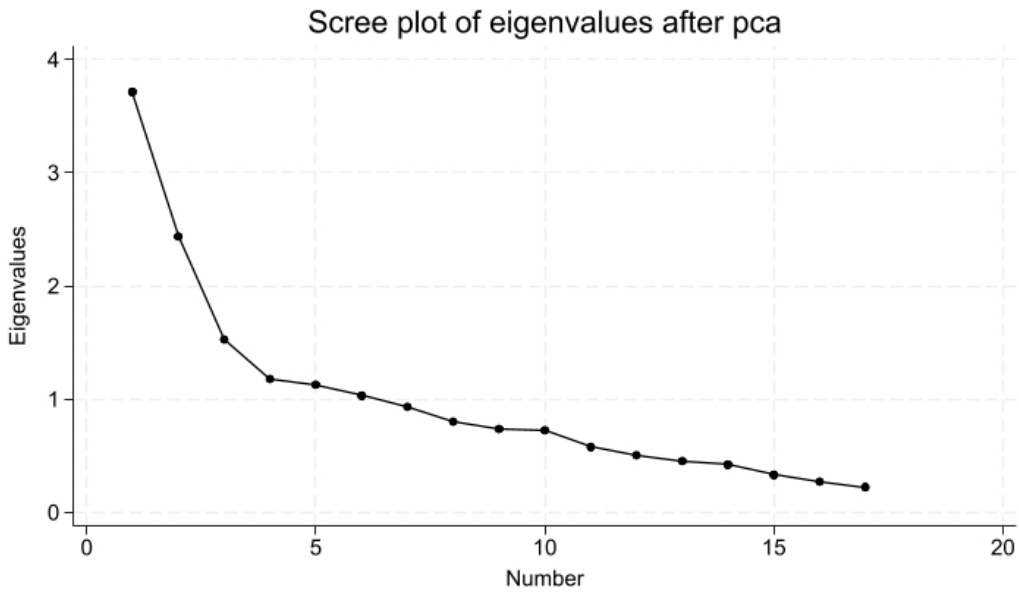


Table 3. Final Stewardship of Place Index

Education	Research	Regional Needs
Graduation rate weighted by percentage of Pell grant recipients	Research/scholarly doctoral degrees awarded	Percentage of students enrolled in health or teaching majors
Pell Grant recipient graduation rate	Percentage of nonbasic R&D conducted	Professional terminal degrees awarded
Non–Pell Grant Direct Subsidized Loan or Stafford Loan recipient graduation rate	Publicly accessible museum	Number of public service FTE staff as a percentage of all FTE staff

way. However, perhaps more important than where the students originate is where they go following graduation, and recent evidence suggests almost 70% of graduates stay within their HEI’s state, with most of those students staying in the nearest metro area (Conzelmann et al., 2023). The fairly high probability of graduates staying near the HEI, along with the well-documented connection between college attainment and regional development (Glaeser & Saiz, 2004), make these indicators an important component of stewardship of place.

The Research dimension also includes three variables. The number of research/scholarly degrees awarded serves two purposes for measuring how research can contribute to stewardship of place. First, graduate students pursuing research terminal degrees are an essential part of research

infrastructure, particularly in fields and at universities less likely to offer postdoctoral positions. Having a large pool of graduate students can support innovation gains in regional development. Second, graduates who have advanced research training and stay in the region can contribute enormously to the productivity gains from innovation beyond just the work they perform while enrolled. Most evidence on geographic mobility of doctoral graduates examines international mobility. There is evidence in Europe that PhD graduates tend to stay in the region of their HEI (Bernela et al., 2018; Waaijer, 2018) and, in the United States, somewhat dated evidence that most PhDs taking jobs in industry stay within a few hundred miles of their HEI (Stephan et al., 2005). We conducted a cursory cross-tabulation of the National Science Foundation’s Survey of Doctorate Recipients to compare the

Table 4. Final Loadings for the Stewardship of Place Index

Variable	Education	Research	Regional Needs
Grad rate weighted by Pell	.52 ^a	-.25	.06
Pell grad rate	.58 ^a	-.00	-.17
DSL grad rate	.56 ^a	-.01	-.23
Research doctoral degrees	.15	.50 ^a	.11
Nonbasic R&D	.08	.43 ^a	-.15
Museum	-.10	.41 ^a	-.28
Health & education majors	.13	-.15	.76 ^a
Professional terminal degrees	.13	.46	.29 ^a
Public service FTE employees	.07	.32	.36 ^a

Note. ^a Final assigned dimension.

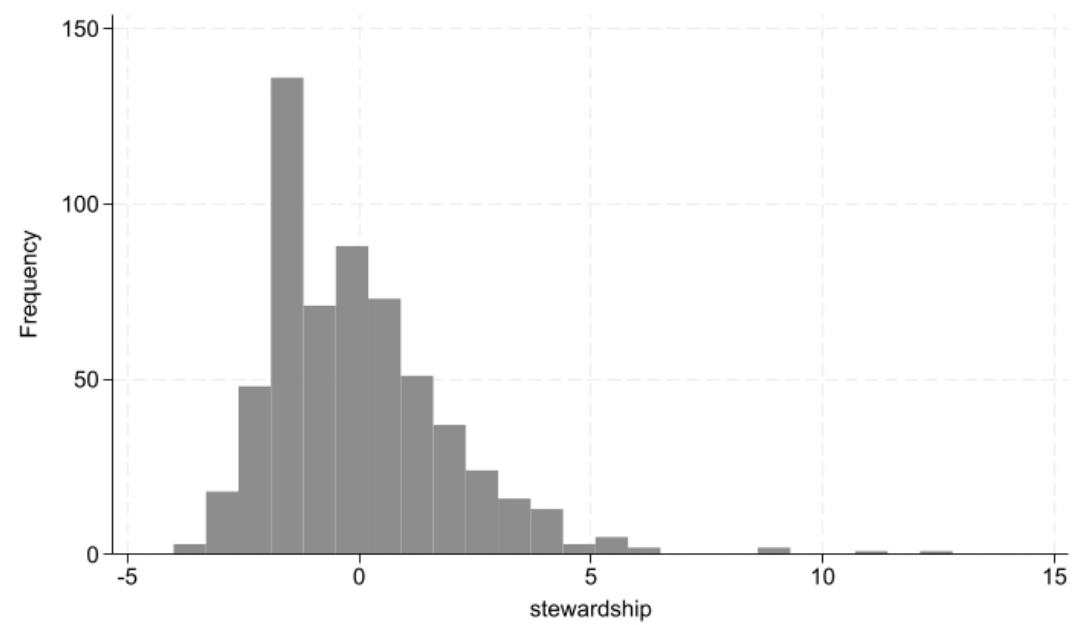
region of graduates' degree-granting institution to the region in which they are employed. Although the West region hires a disproportionately large number of graduates and the Midwest tends to export more graduates than it hires, proportionately the South and the Northeast, the regions in which Appalachia is located, tend to see stronger connections between the number of doctoral graduates and those working in the region, with 46% of doctorate recipients in the South staying there to work, and 37% of all doctorate recipients in the Northeast also staying within their region. The next variable, percentage of nonbasic research and development conducted, aggregates applied research and experimental development, which more directly map to utility for regional economies and public sectors. Higher shares therefore indicate greater institutional orientation toward locally actionable research. The final research variable, having a publicly accessible museum, recognizes research and creative activity beyond traditional conceptualizations of discovery in a format that is community facing. In our initial formulation, the museum variable was placed under the community engagement dimension at the recommendation of the faculty expert, but we revised the placement to Research based

on the loading and our belief the placement still makes conceptual sense.

The third dimension is Regional Needs. The percentage of students in health or teaching majors reflects HEIs' role in addressing the ARC region's persistent workforce needs in health care and K-12. The professional terminal degrees variable captures preparation for typically licensed professions, offering large human capital gains and advanced training in fields with clear value on the job market. Finally, the percentage of all FTE staff dedicated to public service measures institutional capacity dedicated to programs like extension, outreach, or technical assistance.

Once each variable was assigned to one dimension, we used the factor loading on the variable in that dimension to weight the standardized variable. We then added all the weighted, standardized variables together to create the Stewardship of Place Index. See Figure 3 for a histogram of the distribution of the index. The histogram provides evidence of a few nice properties of the index. First, the distribution is roughly normal, with skewness values of 1.6, though with positive kurtosis with a value of 8.5. Second, there are a very small handful of outliers in the right tail. These outliers, however,

Figure 3. Frequency Histogram of the Stewardship of Place Index



make strong intuitive and conceptual sense in terms of what the index is trying to measure. The three outliers on the right are West Virginia University, Cornell University, and University of Pittsburgh–Pittsburgh Campus, two land-grant universities and a public university with strong missions of regional development. These institutions’ outlier status reflects more than size. Strayer campuses across the region, which are part of a large for-profit education company that we would not expect to be as locally engaged, all fall well below the index median. The index is capturing the dosage of this work and acting appropriately in the way we would expect a measure of stewardship of place to act.

As a further test of criterion validity, recall that stewardship of place originated as an attempt to distinguish the role of regional public universities from other types of institutions. Stewardship has since expanded beyond regional publics, but we should still expect public 4-year institutions to have higher scores than institutions that are not public 4-years. We ran a *t*-test to determine whether the mean index value for public 4-years was significantly different from the mean index value for other sectors. Public 4-year institutions tend to score .65 points ($SE = .23$) higher than other institution types ($n = 592, p \leq .01$), consistent with the conceptual origins of stewardship of place as being particularly important for regional

public universities. See Table 5 for a descriptive profile of institutions by Carnegie Basic Classification.

The Education, Research, and Regional Needs columns in Table 5 present mean scores of each dimension by Carnegie Basic Classification. The position of each mean score relative to others serves as further evidence the Stewardship of Place Index is behaving as expected. Doctoral HEIs exhibit markedly higher Research and Regional Needs scores, reflecting the research infrastructure, professional preparation pipelines, and public service activities through which these HEIs typically engage their regions. Master’s HEIs have the second highest mean on Research with relatively middling scores on Education and Regional Needs, consistent with balanced missions that support applied inquiry and some professional programming but at smaller scale. Associate’s and Baccalaureate HEIs also behave in predictable ways, with Research scores sitting below those of HEIs with graduate programs but above Special Focus and Not Applicable. Associate’s and Baccalaureate also showcase potential difficulties with graduation rates or not serving low-income families. Special Focus and Not Applicable (i.e., non-degree-granting HEIs like cosmetology schools or entry-level nursing certification programs) have the highest scores in Education and are only below Doctoral HEIs for Regional Needs.

Table 5. Profiles of ARC Service Area HEIs

Carnegie Basic	<i>n</i>	# of MSIs	Mean index score (<i>SD</i>)	Education	Research	Regional Needs
Associate's	114	6	-.90 (1.10)	-.79 (1.06)	-.03 (.30)	-.08 (.25)
Baccalaureate	83	8	-.70 (1.02)	-.52 (.85)	.08 (.36)	-.26 (.19)
Master's	69	5	-.09 (.91)	-.22 (.66)	.24 (.38)	-.11 (.26)
Doctoral	41	2	1.47 (2.10)	-.02 (.53)	.83 (.74)	.65 (1.65)
Special focus	58	0	.10 (1.22)	.27 (1.05)	-.22 (.12)	.04 (.64)
Not applicable	194	1	.55 (1.18)	.69 (1.09)	-.18 (.01)	.05 (.39)

Table 6. Correlation Matrix for Test–Retest Reliability

	2022	2021	2020	2019
2022	1.00			
2021	.81*	1.00		
2020	.79*	.86*	1.00	
2019	.79*	.83*	.87*	1.00
2018	.77*	.83*	.85*	.86*

Note. * $p \leq .001$

These programs overwhelmingly serve low-income students, which is the primary focus of the Education dimension, and both often specialize in medical education, meeting local workforce needs.

Finally, to test the reliability of the index, we leveraged the longitudinal availability of the data to use test–retest. Although we can expect changes in the index for an institution year-to-year, an institution's prior score should be tightly correlated with its current score. We used 5 years' worth of data and conducted Pearson correlations across each year (see Table 6). The correlation matrix shows each year is highly correlated with previous years, demonstrating that the index provides consistent scores across time. Additionally, the correlation is ubiquitously stronger between years that are closer together. An institution's index score in 2021 is more predictive of 2022 than the score in 2018. This is precisely what we would expect to see as the index tracks institutional change across time.

Discussion and Implications

The newly created Stewardship of Place Index has strong empirical support and can be used for future research and institutional assessment. Several additional findings pushing the literature on stewardship of place forward also emerged from this study with immediate, substantive implications for research and practice, beyond just the utility of the instrument. First, engagement officers are looking for ways to quantify their work and to communicate it to community stakeholders. Concurrently, policymakers are insisting HEIs demonstrate their economic contributions to their states and regions. The focus group participants clearly stated that quantitative measures are important. Although the index tested here is a viable path forward, additional high-quality data are necessary to more fully capture the important work being done. These measures do not need to be particularly complicated. A simple count of the number of memoranda of understanding (MOU), for example, could be used to estimate the

number of partnerships at an HEI. MOUs are not universally applicable measures of partnerships, as HEIs use them for various reasons and in different ways, but these types of administrative data are good starting points for HEIs looking for cheap, scalable ways to measure regional engagement. The number of for-credit internships would be another area of low-hanging fruit. HEIs looking to measure their roles as stewards of place have options, even if those data are not publicly available.

Second, engagement offices are grappling with the utility of the Carnegie Community Engagement Classification. The application is deeply resource intensive in terms of labor hours, and the perceived payoff may not be worth the cost for institutions. Of the four institutions represented in the focus group, two had either decided not to reapply or were not sure yet. One institution had never applied for the designation and did not intend to, likely because the engagement office had no full-time staff. Only one institution saw the process as worth the cost. Notably, that institution was the largest of the four and had the largest engagement office. The faculty expert interviewed was similarly skeptical of the classification as a measure due to the resources required to complete the application. These reservations were supported by the PCA. None of the components loaded strongly onto the Carnegie classification, despite the classification's aims of recognizing engaged institutions. We should note that this result does not detract from the Carnegie Community Engagement Classification's value in reflecting an institution's degree of engagement. Rather, it likely means the classification indicates only that certain types of institution are engaged, specifically relatively well-resourced institutions. Community colleges and 4-year institutions with tight margins remain underrepresented in the list of recipients. Across the 274 institutions with an active designation in 2021, only 10 were Associate's Colleges, 29 were Baccalaureate, 9 were Special Focus, 64 were Master's Colleges & Universities, and a relatively staggering 162 were Doctoral Universities. To put this finding into perspective, more than 20% of all HEIs in the United States are Associate's Colleges, whereas only 5% are Doctoral Universities. The Stewardship of Place Index supports the claim that Doctoral Universities are more likely to be engaged in place-based, regional development work, but the gap in the index distributions is not nearly

as large as in the Carnegie classification. Although the self-study aspect of the classification is valuable, the American Council on Education might consider reforms to the classification process to recognize HEIs that are deeply engaged in their regions but do not have the capacity to complete such an in-depth application.

Third, the distribution of the index by sector provides evidence that private not-for-profit universities and public universities are leading the way in regional development work in Appalachian higher education. This distribution highlights the significant role these institutions play in fostering economic growth and social cohesion in rural areas. The result supports the arguments from Johnson et al. (2009) and Orphan and McClure (2019) that regional universities are powerful organizations for rural development and community stability. This finding underscores the importance of continued investment and support for these universities to sustain and deepen the work they are doing. The place-based, intentional engagement of regional universities is a key component of the long-term prosperity and resilience of Appalachian communities.

Finally, limiting the analysis to the ARC region gives a glimpse into how stewardship of place manifests in largely rural settings. The final index likely privileges activities that are seen as important by engaged HEIs in Appalachia, like being accessible to low-income students, training teachers and health care workers, and serving as a cultural center. In the rural context, HEIs often act as the primary conveners and service providers in a community (Orphan & McClure, 2019). The index recognizes this work across Appalachia and offers context for HEIs looking to expand their regional engagement.

Future research using the Stewardship of Place Index should estimate relationships between stewardship and regional economic outcomes in Appalachia. Rather than relying upon the more limited measures discussed previously in this article, researchers using the Stewardship of Place Index can more accurately capture variation across institutions to better understand how these efforts contribute to topics like wages, unemployment rates, or health outcomes. Understanding these relationships will provide valuable insights into the efficacy of HEIs' contributions to economic growth and resilience in Appalachian communities. Ultimately, this line of research could inform policy

decisions and strategic investments aimed at enhancing the role of HEIs in regional development. Future research should also expand the index beyond Appalachia. This validation study was limited to HEIs within the ARC service area, so in the strictest sense the evidence provided here is applicable only to those HEIs. We believe the measure is very likely generalizable across the United States, though a cursory check of criterion validity and test–retest reliability would be warranted before leveraging the index for empirical work outside the context of Appalachia.

Practitioners can use the index in its current form by calculating their own institutions' score by first standardizing the final nine variables relative to their desired comparison institutions, applying the weights in Table 4, adding them together, then seeing where the institution falls. Roughly, scores greater than 0 are higher than average, and scores below 0 are lower than average. The index can thus be used as one measurement tool among several to convey information about an HEI's regional stewardship. Practitioners looking to expand upon the index could link the publicly available data used here to other restricted-use data sets, administrative data specific to an HEI, or original surveys to strengthen the index's utility as an assessment tool. For example, land-grant universities could add direct indicators of Cooperative Extension activities. Procurement data could be linked to include HEI expenditures to local businesses. Alumni surveys could be used to provide further evidence that graduates are staying within the HEI's service area. We encourage all to take up the work of developing quantitative, conceptually clear indicators of stewardship of place and regional engagement.

Limitations

As with any composite measure built from administrative sources, some characteristics of stewardship of place are captured only imperfectly or not at all. Our selection process was conceptually conservative, retaining only indicators that mapped most strongly to a component in a theoretically coherent way. This approach resulted in eliminating several measures that are hard to imagine as not being related to stewardship, like the percentage of in-state students. Similarly, relying solely on publicly available data may allow for scalability, but it also excludes relevant activities that lack

public measures, like the number of community partnerships, the strength of those partnerships, or community-engaged learning experiences as part of coursework. The index should therefore be interpreted as an estimate of relative position rather than an inventory of all engagement work.

Additionally, relying upon publicly available data means we surrendered some degree of control over how HEIs interpret and report data. For example, HEIs have a great deal of leeway in determining whether a staff member is coded as instruction, research, or public service. A faculty member who mentors students while working in a university health clinic might not clearly fit in a single category, and similar faculty across different HEIs doing the exact same work might be classified differently based upon the organizations' interpretations. We have no reason to attribute differences in reporting to systematic factors, including bias; however, random error has almost certainly been introduced across HEIs.

A third limitation is related to the technical generalizability of the index. This measurement model, including the weights, was estimated solely within the ARC service area. The index behaves as expected by sector within Appalachia, but we currently lack empirical evidence that a similar procedure outside Appalachia would result in the same indicators or weights. Even within Appalachia, spatial heterogeneity could result in different outcomes. The city of Pittsburgh, for example, is contextually different from rural Alabama.

Conclusion

The creation and validation of the Stewardship of Place Index marks a major step forward in measuring how HEIs contribute to regional development, especially in Appalachia. The index serves as a comprehensive, empirical tool to evaluate how effectively HEIs engage with and support their local communities. By capturing a broad spectrum of place-based development activities that cut across all aspects of an institution, the index offers valuable insights into the economic and community development work of these HEIs. Future studies can use this index to deepen our understanding of how colleges and universities affect their regions. Our intent is to leverage the index to estimate the relationship between an HEI's stewardship dosage and regional development indicators like health

outcomes, employment, and wages. This research agenda, built off the Stewardship of Place Index, will help shape policies and strategic investments aimed at promoting sustainable development and resilience.

Although we believe we have presented evidence of the index's validity and reliability, at least within the ARC service area, we also acknowledge room for improvement and further precision. We hope to continue to develop clear, quantitative measures

of stewardship and regional engagement to push the field and the work forward. However, as was made clear to us through this index development process, not all work is easily captured through quantitative measures, and the value of such work should not be diminished. This index should be seen as an important piece of information, but one among many. The index can be a vital tool for academic research and applied assessment, guiding institutions in their work to serve and uplift their regions.



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Collective Impact for Institutional Reform in Higher Education: A Case Study of UC Davis's Catalyzing Impact Initiative

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Abstract

This article examines how the collective impact framework can drive internal cultural and organizational change within higher education institutions to enhance community engagement and public impact. Using the Catalyzing Impact Initiative at the University of California, Davis, as a case study, we explore how collective impact can address internal strategies for improving university-wide engagement practices. Launched by the Office of Public Scholarship and Engagement (PSE) in 2024, the initiative formed interdisciplinary working groups, including diverse campus units and community partners. Unlike traditional applications of collective impact, which focus on external collaborations between the university and broader community, this initiative prioritizes internal transformation to foster greater accountability and institutional support for community engagement. We document the initiative's implementation, analyze the role of PSE as a backbone structure, and discuss the opportunities and challenges to using collective impact for cultural change in higher education.

Keywords: collective impact, institutional change, community engagement



Kania and Kramer (2011) defined collective impact as “the commitment of a group of important actors from different sectors to a common agenda for solving a specific social problem” (p. 36). Initially developed in the nonprofit sector, the collective impact framework emerged as a collaborative, place-based approach for driving large-scale social change (Hanleybrown et al., 2012) and has since gained recognition as a model for advancing social progress (Kania & Kramer, 2011). The collective impact framework outlines several conditions for successful application, including a centralized infrastructure or a “backbone” organization that aligns and coordinates the initiative.

In higher education, collective impact is increasingly applied to address campus-community partnerships, community-based research, and broader community engagement

efforts (Orphan et al., 2018; Schindler et al., 2017; Schwartz et al., 2016; Smith et al., 2017). Scholarship on collective impact highlights its potential for transformational change, particularly when integrated with community-engaged frameworks to enhance universities' ability to achieve meaningful and large-scale community impact (Brown & Moore, 2019; DePrince & DiEnno, 2019; B. Jones et al., 2017; Orphan et al., 2018; Smith et al., 2017). Most collective impact applications in higher education have emphasized external engagement with stakeholders and community partners; however, there has been limited attention to how collective impact can also be a tool for driving internal institutional transformation.

Ramaley et al. (2023) argued that “there is a direct connection between the university's capacity to advance external transformations in society and their ability to organize around and advance effective responses

to complex issues internally” (p. 43). This argument suggests a critical need to examine how collective impact can be applied by universities to address internal challenges, including rethinking responsibility allocation, accountability structures, and decision-making processes. This article addresses a gap in current research by exploring how collective impact can drive internal cultural and organizational change within higher education institutions, specifically in relation to community engagement and public impact.

In 2024, the Office of Public Scholarship and Engagement (PSE) at the University of California, Davis, launched the Catalyzing Impact Initiative as part of a university-wide effort to improve and assess public impact and community engagement. The Catalyzing Impact Initiative applies the collective impact framework to address a unique challenge: fostering cultural change within the university to enhance community engagement. This initiative departs from traditional collective impact approaches by prioritizing internal transformation through infrastructure that incentivizes and evaluates community-engaged teaching, learning, and research, while fostering accountability to community stakeholders and reshaping norms around recognition, rewards, and evaluation.

This article presents a case study of the Catalyzing Impact Initiative, examining its use of collective impact as a framework for building institutional capacity for community engagement. Specifically, we analyze the initiative’s structures and strategies, the challenges and opportunities identified by working group members, and the role of PSE as a backbone structure within the framework. The following research questions guide our study:

1. How does the Catalyzing Impact Initiative utilize the collective impact framework to address internal institutional challenges and foster university-wide cultural change?
2. What are the key challenges and opportunities identified by participants in implementing the initiative?
3. How does the PSE office function as a backbone structure to support cross-campus collaboration and institutional transformation?

Review of the Literature

Collective impact initiatives aim to bring together community organizations, government, and businesses to address complex social challenges such as economic development, public health issues, climate change, and education. As described by Kania and Kramer in 2011, collective impact outlines five conditions for success:

1. Common agenda: a shared vision and definition of the problem with agreed-upon goals.
2. Shared measurement: a consensus on measuring and reporting progress, allowing continuous learning, improvement, and accountability.
3. Mutually reinforcing activities: coordination of differentiated activities through a mutually reinforcing action plan.
4. Continuous communication: a consistent way for organizations to build trust and create new relationships.
5. Centralized infrastructure: a “backbone” organization that aligns and coordinates initiatives.

These conditions, along with preconditions like influential champions, sufficient financial resources, and a shared sense of urgency, provide the foundation for achieving systems-level change (Hanleybrown et al., 2012). Kania et al. (2014) also called for fundamental mindset changes, such as prioritizing the inclusion of individuals with lived experience, embracing relational problem-solving, and acknowledging that solutions must adapt to evolving contexts. This approach differs from more centralized or top-down approaches to community service by emphasizing the importance of engagement and collaboration by multiple stakeholders. The collective impact framework has been applied to a variety of local issues and contexts, including improving maternal and child health outcomes in North Carolina (Schaffer et al., 2022), reducing childhood obesity in Victoria, Australia (Bolton et al., 2022), and aligning education systems in Central Texas (FSG, 2013).

Although the collective impact framework has gained momentum, scholars have identified some limitations, particularly regarding its insufficient attention to equity, power, and meaningful engagement with those most affected by systemic inequities

(Wolff et al., 2017). Critics argue that the framework often privileges business leaders, government agencies, and philanthropies while sidelining the voices of impacted communities. Responding to the critiques, Kania et al. (2022) revised the collective impact definition, positioning equity as a prerequisite for success. This updated framework emphasizes collaboration among community members, organizations, and institutions to achieve systems-level and population-level change, centering equity as the driving force.

In addition to a greater focus on equity, relational work has emerged as a critical component for addressing power imbalances that hinder progress. Milligan et al. (2022) emphasized the importance of creating safe spaces for participants to connect authentically, confront differing perspectives, and heal from past harms. Scholars have further advocated for collective healing practices to address biases, privilege, and structural inequities, urging collective impact collaborators to reexamine their own roles in perpetuating systemic injustices (Cowan et al., 2022; Weaver, 2020). These developments reflect a growing recognition that achieving sustainable systems change requires not just strategic alignment but also a deep commitment to equity and relational accountability.

Institutional Change and Collective Impact in Higher Education

Institutional transformation in higher education is complex, requiring multiple change theories to capture its full scope. Kezar (2018) advocated for drawing from various frameworks, as no single theory fully explains organizational change. Analysis of institutional transformation must encompass the interplay of institutional culture, external pressures, and internal power dynamics. Cultural change perspective, for instance, suggests that organizational culture evolves slowly and non-linearly in response to external shifts, with deeply embedded, implicit assumptions and values that require context-specific interventions. Similarly, institutional change perspective focuses on the unique context of higher education, where both internal factors (like faculty governance) and external pressures (such as political and economic forces) influence change.

Considering these institutional change approaches in higher education, we view collective impact as a tool for fostering a shared vision across diverse units, shifting cultural

assumptions about collaboration and community engagement, and aligning internal and external forces to drive institutional transformation. Over the past decade, collective impact has gained traction in higher education, particularly in campus-community partnerships and community engagement (DePrince & DiEnno, 2019; Fox et al., 2023; Hanleybrown et al., 2012; Lane, 2015; Orphan et al., 2018; Schindler et al., 2017; Schwartz et al., 2016; Smith et al., 2017). DePrince and DiEnno (2019) highlighted the synergy between collective impact and community engagement, noting that community engagement can help address collective impact's challenges, and collective impact can, in turn, strengthen universities' efforts to drive large-scale community change (p. 25). Some institutions leverage collective impact for initiatives like the Carnegie Foundation's Elective Classification for Community Engagement (DePrince & DiEnno, 2019; Lane, 2015; Orphan et al., 2018), and others integrate it into strategic frameworks to address grand challenges, foster university-community collaboration, and advance anchor-institution missions (DiEnno et al., 2024; Gomez et al., 2019; Smith et al., 2017).

Universities as Backbone Organizations

According to Kania and Kramer's (2011) conditions for collective impact success, the backbone organization is a centralized infrastructure that aligns and coordinates initiatives. Alternative terms like "anchor entity," "orchestra conductor," and "quarterback" are also used to describe this role (Edmondson, 2013; Erickson et al., 2012; Turner, 2015). In other words, the backbone organization is the "glue" that bonds participants to the mission and the infrastructure, support, and leadership required to navigate the collaboration and keep participants accountable (DuBow et al., 2018). Much of the work of the backbone organization centers on "changing the attitudes and behaviors of a diverse group of stakeholders" (Turner et al., 2013).

Community-based organizations, with their deep local ties, often serve as backbone support in collective impact initiatives (Klempin, 2016), and research has shown that community-based backbone organizations can be as diverse as local health departments (Schaffer et al., 2022), local primary care partnerships (Bolton et al., 2022), and local business and community leaders (FSG, 2013). However, in the context of higher education, research suggests that

university units may be better positioned for this role (Brown & Moore, 2019; Fox et al., 2023; Garber & Adams, 2017; B. Jones et al., 2017; Smith et al., 2017). University engagement centers, in particular, are well-suited to act as backbones due to their established relationships with administrators, faculty, students, staff, and community members (B. Jones et al., 2017; DePrince & DiEnno, 2019). These centers often possess the trust and credibility necessary to integrate diverse perspectives and foster collaboration with community organizations (DePrince & DiEnno, 2019; Garber & Adams, 2017; Smith et al., 2017). Scholars have begun exploring the potential of decentralized, nonhierarchical networks to serve as backbone structures, expanding the possibilities for collaborative models (Cabaj & Weaver, 2016; Schuler et al., 2017; Fox et al., 2023).

Collective Impact Challenges in Higher Education

Establishing expectations and a common agenda remains a central challenge in collective impact initiatives within higher education. Smith et al. (2017) argued that historical and contemporary university-community power dynamics complicate higher education institutions' ability to act as neutral brokers in such initiatives. At several universities, difficulties in aligning diverse priorities have hindered the development of a shared community vision. For instance, at Virginia Commonwealth University, differing solutions to the same problem obstructed the creation of a unified agenda (Smith et al., 2017). Similarly, Garber and Adams (2017) emphasized the challenge of reconciling the individual interests of organizations with a collective community focus, often leading to siloed priorities. Furthermore, community members frequently expect universities to dictate priorities and solutions (Garber & Adams, 2017). To address these issues, Sgoutas-Emch and Guerrieri (2020) suggested fostering dialogue across projects and engaging in preplanning to better understand community needs before implementing initiatives.

In light of these challenges, Brown and Moore (2019) highlighted the emergence of university community-engaged professionals (CEPs), who play a key role in bridging campus and community through research collaborations, student learning, and advancing the anchor institution's mission. However, a gap persists between the work of CEPs and systematic, longitudinal research

assessing the impact of these efforts. Brown and Moore proposed juxtaposing the lived experiences of CEPs with collective impact principles to better align daily practice with empirical studies of collaborative work with scholars (p. 9).

Boundary Spanning in Higher Education

Along these lines, Ramaley (2014) described how CEPs often serve as critical boundary spanners, navigating complex environments characterized by scarce resources, limited authority, and multiple layers of institutional hierarchy. Operating at the intersection of academic and community contexts, these individuals leverage their familiarity with one context to build bridges with the other. Their primary responsibility is to foster partnerships and create pathways for collaboration that are mutual, reciprocal, and rooted in shared purpose. Ramaley also noted that engagement in higher education often exists in pockets, such as individual faculty research projects or isolated curricular innovations. As a result, boundary spanners play a critical role in connecting these disparate efforts, helping institutions move beyond isolated or discipline-focused projects to develop a more integrated and systemic approach to community engagement.

Similarly, DiEnno et al. (2024) emphasized the critical role of professional development for boundary spanners and highlighted how engagement offices can champion this effort by serving as the backbone structure in collective impact initiatives. Supporting the development of engagement offices as boundary spanners can shift institutional culture toward engagement models that prioritize cocreation and respect across disciplines and societal sectors. Building on this growing body of literature, the following section presents our case study of the Catalyzing Impact Initiative at UC Davis.

About the Catalyzing Impact Initiative

UC Davis is one of 10 campuses within the University of California system, a large, decentralized system of research universities that spans the state of California. As a land-grant institution, UC Davis was founded with a mandate to provide education and research that address societal needs, particularly in the areas of agriculture and environmental sciences. Despite this historical mandate, community engagement at UC Davis has

largely been addressed through decentralized, discipline-based offices, leading to challenges in developing a university-wide approach to community engagement. In 2015, UC Davis earned national recognition for its dedication to community engagement through the Carnegie Foundation for the Advancement of Teaching Community Engagement Classification. The classification process identified the need for a university-wide entity to support and strengthen the growing network of individuals and groups across campus. It also highlighted the importance of establishing permanent resources to support, recognize, and reward public scholarship. In response, UC Davis launched PSE in 2019 as a unit within the Office of the Provost. Drawing from emerging scholarship on collective impact, PSE assumed a backbone role, serving as a connective hub to coordinate and convene university-wide efforts. Its mission focuses on expanding the scope and scale of publicly engaged research and teaching across the institution (Office of Public Scholarship and Engagement, 2019).

As UC Davis prepared to pursue Carnegie reclassification in 2026, PSE staff sought to assess and evaluate the university's community engagement activities. PSE saw the need to improve assessment infrastructure to understand the university's public impact better, strengthen collaborations among university units and between university researchers and community partners, and develop a strategy for future capacity building to support and expand public impact. In winter 2024, PSE launched the Catalyzing Impact Initiative to pursue these goals.

The working groups were organized using the collective impact framework. Instead of relying on leadership to direct change, we sought to gather knowledge from stakeholders. In this case, the stakeholders were faculty and staff who were invested in institutional culture change and who were considered CEPs due to their direct involvement in community engagement at UC Davis. In addition, community partners were involved in each working group to provide perspectives from organizations with experience partnering with UC Davis. The initiative comprised three working groups focused on community partnerships, assessment and integration, and communications and messaging. Campus leadership guided PSE staff in choosing working group members; ultimately, those identified for participation

received a letter of appointment from the university provost. Participants were chosen based on past involvement with PSE's community engagement programs, as well as their strategic positioning as impactful leaders on campus. Each working group included 10 to 12 faculty or staff members from across university units and programs. Approximately 30 research centers and university offices across campus were represented in the working groups, including the Office of Diversity, Equity and Inclusion; Government and Community Relations; Global Affairs; Grand Challenges; Undergraduate Education; and Strategic Communications. Each working group also included two community partners who were compensated for their time commitment.

Each working group was led by two co-chairs, who were tasked with setting agendas and facilitating the monthly meetings. At least two PSE staff members attended each monthly meeting and served in the backbone role. Each working group met monthly, and two cochairs in each working group also held separate meetings with PSE staff to plan meeting agendas and manage other logistical tasks. A steering committee made up of university administrative teams served in an advisory role for the working groups. This group met quarterly with the working group cochairs to hear updates from the working groups, provide feedback, and ultimately disseminate the outputs and recommendations produced by the working groups to university leadership councils, led by the chancellor and provost. This organizational structure was intended to ensure the initiative's alignment with university priorities and to keep leadership informed at all phases of the initiative (see Figure 1).

Each working group was tasked with addressing a different aspect of community engagement at UC Davis (see Figure 2). The Community Partnerships group was tasked with developing a university-wide definition of community engagement, developing qualitative data collection methods such as surveys that can regularly assess the quality of community partnerships, and introducing a software platform that would help track community partnerships across the university. The Assessment and Integration group was tasked with exploring existing and new data sources on public impact and developing an internal-facing data dashboard to track student outcomes, faculty research outcomes, and institutional

Figure 1. Catalyzing Impact Initiative Structure

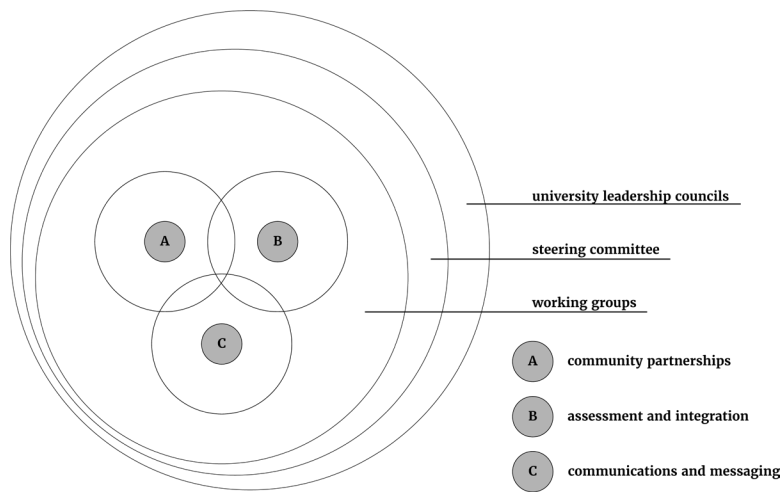
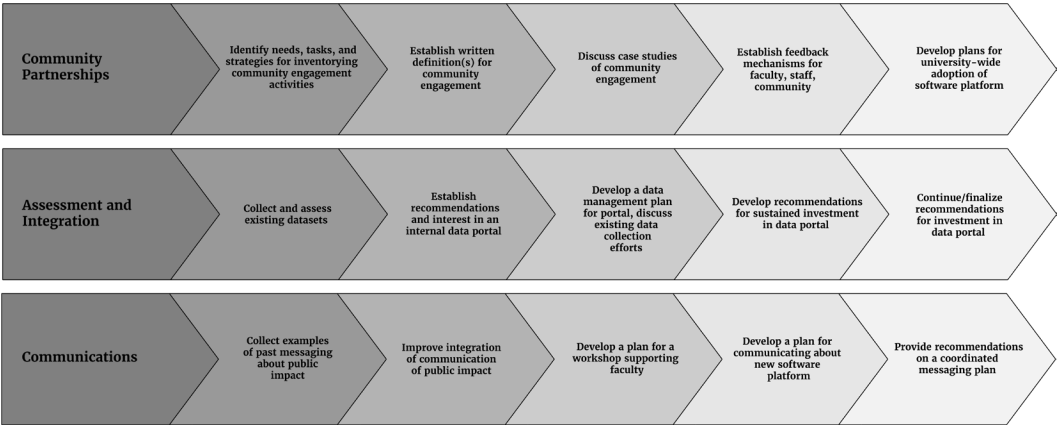


Figure 2. Details of Working Groups Milestones



investments that are tied to public scholarship and community engagement. The Communications and Messaging group was tasked with collecting case studies or stories of public impact, crafting a university-wide messaging strategy about public impact, and communicating the data collection efforts to university units. PSE staff developed broad goals and milestones for each working group before the initiative began, but remained open to the process of feedback and common agenda setting by the working groups, as advocated by Kania and Kramer (2013) for collective impact initiatives.

Method

This study used a qualitative, interpretivist single case study design to examine the internal organizational context of the Catalyzing Impact Initiative at UC

Davis. Data were collected over one year, from January 2024 to December 2024, enabling an in-depth exploration of organizational processes and collaborative dynamics over time. The case focused on the initiative’s internal structure and its three working groups: Community Partnerships, Assessment and Integration, and Communication and Messaging. The study sample consisted of 40 participants ($N = 40$) from these working groups, representing a diverse cross-section of faculty, staff, and community partners. As previously stated, each working group was composed of 10 to 12 faculty or staff members representing multiple university units and programs, as well as two community partners with prior collaborative projects with UC Davis. Community partners were compensated by PSE for their participation in the working groups. The research questions

were designed to explore how participants understood, experienced, and enacted organizational change within the initiative. This study did not require Institutional Review Board (IRB) approval, as it was conducted as an internal initiative at UC Davis and met exemption criteria for projects involving university faculty and staff.

As scholar-practitioners, our positionality as employees of PSE at UC Davis is central to understanding the context and nuances of the Catalyzing Impact Initiative. One of us serves as a postdoctoral scholar and the other as a program manager in PSE. We were both deeply involved in the initiative's development. We contributed to each of the initiative's working groups, where we co-facilitated meetings alongside the working group cochairs. In this role, we supported the cochairs in preparing and facilitating monthly meetings, delivering presentations, and assigning tasks to group members. Additionally, we followed up with members between meetings to ensure ongoing engagement and progress.

Survey and Focus Groups

Before developing the survey, we conducted a comprehensive document analysis to trace the history and evolution of the Catalyzing Impact Initiative. This process involved reviewing agendas, meeting minutes, and milestones to identify key transformative changes and assess the initiative's progress over time.

An anonymous online qualitative survey was administered to all 40 members of the three working groups 6 months into the initiative (June 2024) as an initial data collection method. The survey consisted of 10 open-ended questions designed to gather participants' perspectives and experiences related to their involvement in the Catalyzing Impact Initiative. Questions explored participants' motivations for joining the working groups, understanding of the groups' mission and expectations, perceptions of meeting structure and logistics, connections between working group activities and the broader initiative, ability to participate openly, and overall feedback on their experience. The survey was conducted anonymously to ensure confidentiality and reduce potential biases due to the researchers' proximity to the working groups. Survey responses, which yielded a 60% response rate, provided an overview of perspectives

across working groups and informed subsequent stages of data analysis.

In addition to the survey, we conducted focus groups during the in-person working groups' retreat in August 2024. Using semistructured, open-ended questions, the focus groups were designed to gather participants' perspectives on the initiative's progress and the potential for sustaining the work beyond the conclusion of the working groups in spring 2025. A total of 25 participants took part, representing a cross-section of the three working groups. Participants were asked to reflect on the aspects of their working group's work they would most like to see implemented within their own units or organizations, the barriers that might prevent this work from continuing, and the types of support, including support from PSE, that would be necessary to sustain these efforts.

Analysis

The open-ended survey responses and focus group transcripts were entered into NVivo for analysis. We conducted an iterative coding process using a narrative approach (S. R. Jones et al., 2013) combined with thematic analysis (Riessman, 2008). Initial analyses involved open coding to identify salient themes, refine emerging patterns, and build a coding structure. A constant comparative method allowed us to move from specific text segments to broader themes and subthemes, reaching saturation (Creswell et al., 2007). We employed several strategies to ensure the credibility and rigor of our findings. A key component was frequent debriefing sessions with our Public Scholarship and Engagement team, including the vice provost and associate vice provost of public scholarship. These collaborative sessions provided invaluable opportunities for reflection, allowing us to explore alternative approaches and identify potential flaws in our proposed course of action (Shenton, 2004). In addition, we shared our preliminary analysis with members of each working group for feedback. Furthermore, in fall 2024, we presented our study at the annual conference of the International Association for Research on Service-learning and Community Engagement (IARSLCE), where we received additional feedback from academic peers and colleagues. This external commentary allowed us to refine our arguments and ensure that our findings were well-supported by the data and aligned with broader academic discussions.

Findings

To evaluate the implementation of the Catalyzing Impact Initiative, findings are presented in relation to the research questions and framed through Kania and Kramer's (2011) five conditions for collective impact success: a common agenda, shared measurement systems, mutually reinforcing activities, continuous communication, and backbone support organization. Our findings include three overarching themes. The first theme, meeting organization and structure, addresses how the initiative aligned with the conditions of continuous communication and mutually reinforcing activities. The second theme, group member motivations and commitment, relates to participants' engagement, perceived challenges, and opportunities, corresponding to the common agenda condition. The third theme, initiative sustainability, examines factors influencing the continuation and institutionalization of the working group efforts, linking to the importance of backbone support. Each theme is presented with participant feedback that highlights the successes, challenges, and potential areas for improvement, providing a foundation for discussion of the initiative's progress, effectiveness, and implications for fostering university-wide change.

Meeting Organization and Structure

Various tools were used to facilitate mutual trust and collaboration among participants, including structured large-group discussions, small-group activities, and "homework" assignments completed between meetings and shared in subsequent sessions. These assignments encouraged participants to apply their individual skills toward completing overall project goals, reflecting the collective impact condition of mutually reinforcing activities. Activities during meetings, including structured discussions, were designed to maintain continuous communication, ensuring that ideas and progress flowed openly among participants. Both of these conditions are critical to the successful coordination and implementation of the initiative.

In the survey, participants spoke highly of how the working group meetings fostered a collaborative and learning-centered environment, focusing on experimentation, dialogue, and reflection. They appreciated the use of engaging tools such as structured agendas, breakout rooms, virtual whiteboards, and homework assignments, all of

which encouraged active participation. As one participant noted in the survey:

I think our homework assignments promote reflection by giving people time to simmer in their thoughts after the meeting and then provide an anonymous perspective—this was especially important around the final drafts of the definitions, where people had a chance to “thumbs down” a definition if they found it really problematic and could do so in a way that didn't put anyone on the spot in the moment, but let all of us think and reflect before reacting.

Additionally, members shared that the meetings provided valuable opportunities to exchange insights through presentations, resource sharing, and open discussions. These exchanges were often taken back to their teams for further exploration and action. Another member shared:

Hands-down the most valuable part of this for me is talking about all of this with people from very different UCD units and community groups and seeing how we all approach this work similarly and differently.

I really love our working group.

The structure of the meetings was described as well-organized, maintaining a balance of structure and flexibility that allowed for open communication and participation. Members felt that this balance fostered an atmosphere of trust, where individuals could freely express ideas and engage with one another. One member noted, “I appreciate the format and camaraderie, which allows every member to be seen and heard.”

It is important to note that the working group meetings were all hosted virtually via Zoom, except for an in-person midyear retreat in August 2024. Several participants expressed excitement about meeting each other in person for the first time after 6 months of working online. One participant shared, “The retreat today really rekindled my excitement. An in-person day was a really great idea, and this was a good time to do it to keep that enthusiasm flowing.”

Despite the positive feedback on the structure of the meetings, several challenges emerged, particularly around time and

capacity limitations. Many participants indicated that, although the meetings were beneficial, their busy schedules and multiple responsibilities made it difficult to fully engage. One participant shared:

The amount of time that is diverted from our day job in support of extra-curricular committee work is grossly underestimated. Meetings, emails, doodle polls, pre work, post work, report writing, multi-hour retreat days . . . it's A LOT.

There was also feedback requesting greater clarity on how meetings build on each other over time and what happens with the information generated at each session. For instance, one member shared, "[I'm] not clear what decisions the workgroup is involved in making. It feels that we provide input, but it is unclear what happens with it." Some participants noted that they would appreciate a clearer sense of how each meeting contributes to the broader goals of the initiative and how the insights from the meetings are utilized.

Group Member Motivations and Commitment

The motivation and commitment of working group members were crucial aspects of this study, particularly as university leadership played a role in developing a common agenda and partially inviting or assigning members. After analyzing the correlation between participants' stated interest in joining the working group and their commitment to the initiative, we found that approximately 60% demonstrated both strong motivation and deep commitment. For many, motivations ranged from a personal passion for community-engaged work to a professional alignment with the initiative's objectives. One participant shared:

I wanted to learn more about the community-engaged work happening on campus, meet people who are engaged with this work, and contribute to documenting and communicating the impact and importance of this work through the Carnegie application and beyond.

This sentiment was echoed by others, who felt a strong connection between the initiative's goals and their own work, noting that the project's relevance to their roles helped foster their enthusiasm: "It seemed like a

neat opportunity to help out. As a graduate of UC Davis now working with UCD faculty, I thought I could offer some interesting perspectives."

In contrast, some participants expressed a more moderate level of engagement, citing the need for tangible benefits or clearer alignment with their own work goals. The issue of overextension due to multiple competing commitments was frequently mentioned as a barrier to deeper involvement. Several members pointed out the difficulty of fully engaging when their work-life balance was stretched thin. One reaction reflected a common challenge:

I'm on a lot of committees, work groups, search panels, etc. and, in my experience, the engagement issue is common and not just with this initiative. People are overextended and in general, I think we need to be more judicious about starting new initiatives, committees, working groups, etc. that ask folks to volunteer their time on top of their already packed workload.

Furthermore, participants noted that sustaining their long-term commitment to this initiative was particularly challenging due to the absence of visible, immediate outcomes from their efforts. This lack of clarity around tangible progress left many questioning the value of their involvement. Several participants emphasized the need for a clearer definition of their roles as working group members, particularly in terms of actionable contributions and a better understanding of how their individual partnerships could directly benefit from this broader institutional work. One participant captured this sentiment, stating:

Given the slow pace of organizational change, any benefit to researchers engaged in this work or to community partners is unclear. It feels like the benefit is very unidirectional—to optimize optics for the university. I would feel more committed if I felt that my work and my partners would benefit from these efforts. The current efforts do not point to that benefit.

These reflections underscore the critical need to clarify roles and expectations as well as provide concrete resources and actionable

pathways to demonstrate the reciprocal benefits of this work for all stakeholders involved.

Initiative Sustainability

Participants overwhelmingly recognized the initiative's potential to make a significant impact across multiple campus units aligned with community engagement goals. However, concerns about its long-term sustainability emerged as a recurring theme. Members expressed unease about pulling resources away from other campus priorities and emphasized the importance of making the initiative self-supporting, including through the long-term presence of a backbone support, critical in Kania and Kramer's (2011) model of collective impact. Several participants highlighted the challenge of overburdening existing staff and faculty, noting the need for "tangible support and resources" to prevent "stretching folks too thin." To ensure the initiative's success beyond the working groups, participants provided several actionable recommendations.

Communication and Data Management

Members called for continued communication support to amplify the initiative's impact. Participants cited "managing, gathering, and disseminating stories of community engagement" as a crucial way to maintain momentum and demonstrate progress. They emphasized the need for PSE to foster interdisciplinary collaboration through regular meetings that align goals, facilitate ongoing dialogue, and ensure logistical coordination. As one participant suggested, PSE should "steward the process" by "convening stakeholders in a structured way around shared objectives."

Participants also highlighted the critical role of data in sustaining the initiative. They recommended that PSE lead efforts to collect, manage, and analyze data on community engagement activities across campus. This course of action would help assess the effectiveness of these efforts and provide data-driven insights to inform decision-making and demonstrate the initiative's value. For both of these recommendations, participants pointed to the necessity of a dedicated organization (in this case, PSE) to steward these efforts, highlighting the importance of the backbone role that Kania and Kramer (2011) included in their collective impact model. Within the university context, this

role could also be filled by boundary spanners, as described above.

Financial Resources and Systemic Change

Adequate funding was identified as essential for sustaining and expanding community engagement work. However, participants stressed that financial resources alone would not be sufficient. As one member explained, achieving long-term success requires deeper, systemic changes:

To be fully committed, there would need to be an allocation of real resources to the doing of CE [community engagement] work, including the alignment of policy and practice, and the corresponding people sitting at the table. There would also need to be some promise of what will change in the doing of CE that will make it less burdensome, more integrated, an acknowledgment of the misalignments, and a commitment from leadership to rectify these over time. Without that, it's just another flavor of smoke and mirrors.

Along these same lines, participants repeatedly underscored the importance of organizational and cultural shifts to complement financial support. Participants expressed a desire for greater commitment from institutional leadership to address existing misalignments and integrate community engagement into everyday practices. As one member noted, "There is comfort in knowing someone is working on a goal and sustaining it," highlighting the need for ongoing support from leadership to build trust and momentum.

Discussion and Implications

The findings from this case study provide valuable insights into applying collective impact in a university setting. Specifically, the findings illuminate (1) how the Catalyzing Impact Initiative utilized the framework to address internal institutional challenges and foster university-wide cultural change, (2) the key challenges and opportunities identified by participants in implementing the initiative, and (3) how the PSE office functioned as a backbone structure to support cross-campus collaboration and institutional transformation. Although the survey responses and focus groups occurred midway through the implementation

of our initiative, they offered helpful information about PSE's role as a backbone and identified potential steps for future progress. Findings highlight the relational work required to create spaces for meaningful dialogue among working group members (Milligan et al., 2022) and the mindset shifts essential for sustainable systems change (Kania et al., 2014).

The findings revealed persistent capacity challenges and the siloed nature of university structures, which remain significant barriers to this work. Additionally, the pervasive influence of university culture continues to shape engagement efforts, underscoring the critical need for systemic change. A key tension lies in the disjointed leadership structures inherent to higher education institutions. Although the collective impact framework emphasizes a bottom-up leadership approach that brings diverse stakeholders into the decision-making, universities typically operate with top-down leadership models that ultimately rely on executives to direct change. These disconnects can hinder the effectiveness of culture change initiatives, as efforts to foster bottom-up collaboration may clash with hierarchical decision-making processes. Furthermore, the frequent turnover in executive leadership exacerbates these challenges, as shifting university priorities under new leaders can undermine the long-term sustainability of collective impact initiatives. In the following sections, we explore these challenges, their implications for advancing community engagement practices, and the pivotal role of boundary spanners in navigating these complexities to foster meaningful institutional change.

Capacity Challenges

Implementing collective impact within a university context requires a deep understanding of university culture, where faculty and staff are asked to take part in numerous committees, and assigning individuals to working groups is a common practice. Assigning working group members to the Catalyzing Impact Initiative was necessary to ensure key roles were represented; however, this approach can backfire if it includes participants who are less invested in the project's goals, and who are already overcommitted to other university responsibilities. The limited capacity of working group members was discussed in the survey and focus group, where members noted they were managing multiple work assignments

and committees, which limited their attention spans and commitment to the initiative. In the monthly meetings, this limited capacity made it difficult for working group coauthors to serve as the driving force of agendas, and for working group members to come to meetings fully prepared, limiting the ability of the group to develop a common agenda and participate in continuous communication (Conditions 1 and 4 in Kania and Kramer's [2011] collective impact framework). As a result, PSE staff were sometimes compelled to fill in gaps in leadership by guiding agenda creation or assigning work or readings between meetings.

We suspect that this dilemma is not unique to UC Davis. The multiple roles and responsibilities being filled by university staff members, and the increasing initiatives, committees, and task forces in university administrative circles, can result in over-taxation or burnout, requiring the backbone organization to assume a stronger leadership role. Balancing the need to take leadership with the desire to empower coauthors to lead was a constant negotiation during this initiative and one that other community engagement offices will need to anticipate if starting their own initiative.

Disrupting Silos

A primary aim of the Catalyzing Impact Initiative was to bring staff and faculty from across units and departments together with the shared mission of institutionalizing community engagement and building infrastructure to support, enhance, and assess this work. Early in the initiative, it became clear that deliberately creating time and opportunities to break down communication silos across university units was crucial for achieving these shared goals. Participants spoke positively about both the opportunity to collaborate with people from different parts of campus they may not have otherwise met, and the sense of camaraderie that developed while working together on the shared topic of community engagement. The creation of interdisciplinary working groups facilitated cross-unit collaboration and helped disrupt traditional boundaries between departments and offices. For instance, one strategy that proved successful in breaking silos was the "lightning round" presentation format, where each working group member shared their unit's experiences on the topic at hand. These brief (3–5 minutes) presentations allowed participants to learn from each other's lived experiences,

share best practices, and discover ongoing initiatives or projects they might not have been aware of. This practice was incorporated into two working groups' monthly meetings, contributing to an environment of trust and open communication while setting the stage for future cross-unit collaborations.

Additionally, the combination of virtual meetings with an in-person retreat resonated well with members, as the retreat offered a valuable opportunity to strengthen relationships. In a time when many gatherings are virtual, incorporating in-person opportunities can significantly change the collective dynamic. Despite the busy schedules of these university faculty and staff, these meeting strategies enabled group members to develop trust and rapport, critical elements in the collective impact framework.

PSE as Backbone and Boundary Spanner

PSE staff operated as a backbone organization for the initiative by providing support for working group meetings, coordinating communication across participating units, and guiding overall vision and strategy. In parallel, it became evident that PSE staff were also serving as institutional boundary spanners throughout the initiative. Sometimes referred to as "third space" professionals, boundary spanners act as bridges between disparate units across the university as well as between the university and the broader community, facilitating interdisciplinary and cross-sector collaborations (Ramaley, 2014; Weerts & Sandmann, 2010; Whitchurch, 2015).

In the context of the Catalyzing Impact Initiative, PSE primarily fulfilled the role of internal engagement advocate, connecting various university units through working group meetings and fostering interdisciplinary dialogue. This case study builds upon and reaffirms emerging research exploring the role that engagement center staff can play in building boundary-spanning capacity through the collective impact organizational framework (DiEnno et al., 2024). It underscores the critical need for intentional strategies to overcome silos and for professionals like PSE staff who operate in the third space to foster lasting collaboration across multiple sectors. Future research might explore how the interplay between backbone structures and boundary spanners enhances the success of community-engaged initiatives and how these roles can

be supported to sustain meaningful institutional transformation.

Limitations

The findings of this study are specific to the context of a single R1 public university and reflect the unique dynamics, structures, and challenges inherent in such an institutional setting. Consequently, these findings are not generalizable to all institutions of higher education. Additionally, this study represents an initial exploration of the Catalyzing Impact Initiative, which remains in progress. The ongoing nature of the initiative means that certain long-term outcomes or broader impacts may not yet be evident. As mentioned, our case study participants included university faculty/staff and community partners from our working groups. However, to protect anonymity, we did not disaggregate responses based on participants' roles. Future research should explore the nuances of these roles, particularly the perspectives of community partners in contributing to institutional change within universities.

Another limitation lies in our positionality as researchers. As staff members directly affiliated with PSE, we approached this study as insiders, actively involved in the initiative's development and facilitation of working group meetings. Although this insider perspective provided valuable insights and access, it may also have introduced biases in interpreting the data. Future studies could incorporate external data collection and analysis to further assess the initiative's impacts.

Conclusion and Best Practices

This study explored how the collective impact framework can drive internal cultural and organizational change within higher education institutions. Specifically, it examined how collective impact principles can enhance university-wide community engagement, establishing infrastructure to incentivize and evaluate community-engaged teaching, learning, and research, and fostering greater accountability to community stakeholders. By applying collective impact to an internal culture change effort, the Catalyzing Impact Initiative showcases the transformative potential of cross-unit collaboration and boundary spanners while highlighting the unique challenges of navigating silos and entrenched hierarchies across campus and between the university and community part-

ners. To support others engaging in similar efforts, we close with some best practices for institutions and practitioners implementing collective impact initiatives.

Clarity, Transparency, and Roadmapping

Survey and focus group responses highlighted the overburdening of staff and faculty members. In response, PSE staff implemented strategies to increase communication of the initiative roadmap to help working group members keep track of progress and future directions of meetings. For example, we created a digital timeline visual to include in emails to the group, illustrating milestones and allowing group members to quickly reference their group's progress and upcoming topics of discussion. We also began explicitly connecting the tasks in each meeting agenda to a larger group goal or milestone through a verbal introductory period at the beginning of each group meeting, so that group members could more easily connect the meeting agenda with overall group progress. Although these modifications may seem minor, the midpoint survey demonstrated the importance of providing regular reminders and updates on group progress to accommodate busy group members. The results of the midpoint survey were shared with working group members, and the subsequent modifications were described by PSE staff, in the spirit of full transparency. These strategies are consistent with the backbone role in the collective impact framework, and also respond to the current realities of staff and faculty members who participate in multiple committees and initiatives across the university.

Assigning Key Members Versus Self-Motivated Members

Although PSE recommended participants for the working groups, the members were

ultimately appointed by the provost, and given a group charge that was drafted by PSE and approved by the provost. Leadership support was crucial to providing a sense of legitimacy and significance to the initiative, and ensured the participation of key faculty and staff members who were positioned to create culture change at the institutional level. However, the group members who were already committed to a community-engaged university demonstrated higher participation in meetings and a commitment to future participation in the initiative's efforts long term, crucial to the sustainability of the initiative's goals. Thus, limiting the number of assigned members within a working group may be more strategic. Although assigning participants may be necessary to ensure that key positions are filled, overloading a group with assigned participants could lower overall commitment and impede progress. In future initiatives, university public impact offices may consider the group dynamics relevant to their initiative and encourage self-motivated individuals to populate the majority of group membership, assigning only a few key positions with the power to carry forward initiative goals to leadership and promote broader institutional change.

In conclusion, the Catalyzing Impact Initiative highlights both the potential and challenges of applying the collective impact framework to higher education institutional change. Although the framework is valuable for university initiatives, its effectiveness depends on considering institutional culture, addressing participant capacity, and breaking down silos that hinder collaboration. This adaptation provides important insights into how institutions can prioritize internal transformation to enhance community engagement.



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Alumni Perspectives on the Impact of a K-12 STEM Pathway Program: A 20-Year Look Back and Model for the Future

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Abstract

Structural barriers beyond academics might explain why academic interventions have not significantly increased the representation of historically underrepresented groups in STEM fields. For the past 20 years, the Saturday Academy (SA), a STEM partnership between a university, a community college, and an urban school district, has embraced a holistic approach to academic enrichment. We report alumni perspectives on how SAs affected their professional paths. An 88-item retrospective survey focused on career literacy, personal development, socioemotional learning, and resource access was administered through a private Facebook group and completed by 96 alumni. Descriptive statistics were used to estimate effect sizes, identify patterns, and generate insights into participants' perspectives. The largest shifts were noted for self-efficacy, professional network development, and relationship development. Moreover, those reporting lower baseline career literacy, personal development, or resource access reported the greatest improvements after SA. Program design recommendations and study limitations are discussed.

Keywords: STEM, mentorship, socioemotional learning, urban schools, underrepresented students



The health care industry will likely lead to the growth of the U.S. economy in the next decade as our population continues to grow, age, and become more diverse. Health care industry employment is projected to grow much faster than the average for all occupations, adding approximately 3.8 million new jobs by 2024 (Martiniano et al., 2016). Moreover, its rapid growth has been coupled with serious shortages. By 2030, one million nurses will retire, and the demand for physicians will exceed supply by a range of 42,600–121,300 (Daniel & Smith, 2018). The need for health-care workers extends beyond physicians and nurses. Healthcare support occupations are projected to grow rapidly, including home health and personal care aides and physical and occupational therapy assistants (U.S. Bureau of Labor Statistics, 2022). At

the same time, workforce projections suggest that the supply of workers may not keep pace with demand in some healthcare occupations (National Center for Health Workforce Analysis, 2025).

Despite ongoing efforts to diversify the health care workforce, significant underrepresentation persists within the health care industry. Although they constitute 32% of the U.S. general population, compared with their White (67%) and Asian (13%) counterparts, only 9% of the STEM workforce identifies as Black and 8% as Latine (Pew Research Center, 2021). These patterns are even more alarming when examining the physician workforce: 5% of doctors identify as Black and 6% as Latine, whereas 56% identify as White and 17% as Asian (AAMC, 2018). Increasing workforce diversity has the potential to significantly contribute to reducing health disparities (Jetty et al.,

2022; Marrast et al., 2014; Parker et al., 2017; Shen et al., 2018). Health care professionals of color are more likely to work in impoverished areas. Moreover, linguistic and racial concordance between patients and providers, particularly those patients who are more likely to experience health disparities, leads to improvements in the quality of care for all.

Although the health care workforce crisis is undeniable, the complexity of the problem continues to increase. *Urban intensive contexts* are school districts in large metropolitan areas where population scale and density strain resources and services, directly influencing what occurs inside schools (Milner, 2012). Such districts disproportionately serve students of color and receive approximately \$1,600 less funding per student than the national average (EdBuild, 2019). Research shows that underrepresented minority students are indeed interested in STEM (Simpson, 2001; Xie et al., 2015). However, a lack of access to a rigorous curriculum, including AP courses, is one of the unintended consequences of such a resource gap and a deterrent to pursuing a STEM career. White students represent half of the AP course enrollment (Xu et al., 2021). Even when access to an AP course is available, 30% of Black and Latine students enrolled in at least one AP course do not take any AP exams, whereas 25% of White students and 15% of Asian students do.

Considerable amounts of funding have been funneled into urban high school pipeline programs as an approach to increasing the number of underrepresented minority students in health sciences and addressing the inequitable educational experiences that students are likely to encounter (Brown, 2021; Holden et al., 2014). These programs have often focused on fixing “leaks” in the pipeline by providing academic enrichment in subjects such as math and science that are perceived as gatekeepers to careers in STEM. This approach has failed to produce the desired outcomes (Cannady et al., 2014, p. 444). Critical perspectives in STEM have pushed for culturally relevant programs that go beyond academics. Within this approach, the focus is on the sociocultural factors that affect a student’s experience in navigating STEM academics and careers, such as stereotype threat, lack of social capital, or the culture and climate of STEM, with the goal of nurturing urban youth to see themselves as future STEM professionals (Beasley &

Fischer, 2012; Garvin-Hudson & Jackson, 2018; McGee et al., 2021; Ong et al., 2011). This article describes the Saturday Academy (SA), a 20-year-old STEM after-school enrichment program that incorporates socioemotional learning in its design and directly addresses the barriers that students growing up in urban intensive contexts may face as they attempt to pursue higher education in STEM fields. The primary goal of this study is to understand how Saturday Academy participation has impacted alumni by identifying patterns and generating insights into the career literacy and awareness, personal development, socioemotional learning, and resource access of Saturday Academy participants. Moreover, this article provides a unique contribution to the field by sharing alumni’s perspectives about which aspects of SA have critically influenced their professional paths.

Program Description

Starting more than 20 years ago, the Saturday Academy was the foundational program of the K-12 Initiative, a partnership between the University of Kansas School of Medicine, the Kansas City Kansas Community College, and the Kansas City Kansas Public Schools, USD 500. The mission of the K-12 Initiative is to increase diversity in health and STEM professions by providing high school students with academic and socioemotional learning opportunities that are evidence-based and contextualized to students’ realities. The Saturday Academy serves middle and high school students in Kansas City Kansas Public Schools, USD 500, an urban school district located in the most diverse county (Wyandotte County) in Kansas. The student population of more than 22,000 students comprises approximately 50% Latinx, 29% African American/Black, 11% White, and 7% Asian students. Sixty-five different languages are spoken by students in the district, making it one of the most linguistically diverse school districts in the nation. The percentage of students eligible for free or reduced-price lunch is currently 77%, which puts the district into the “high poverty schools” category according to the National School Lunch Program (McFarland et al., 2019). The district holds the lowest 4-year high school graduation rate (73.6%) in the state.

Saturday Academy Structure

The curriculum is composed of three key

student development pillars—academic, workforce, and self-development—and is designed by teachers from the school district and STEM industry professionals from the Greater Kansas City area. A framework created by the Collaborative for Academic, Social, and Emotional Learning (CASEL-5) provides the foundation for the design and structure of SA. The framework comprises five areas of competence for socioemotional learning: self-awareness, self-management, relationship skills, responsible decision-making, and social awareness (CASEL, n.d.; Faria et al., 2017; Weissberg et al., 2015). The Collaborative for Academic, Social, and Emotional Learning defines social and emotional (socioemotional) learning as

the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions. (CASEL, n.d., para. 5)

Although many educational frameworks aim to support student development (e.g., positive behavioral interventions and supports, emotional intelligence), the CASEL-5 social and emotional learning (SEL) framework

stands out for its robust empirical support and practicality (Greenberg, 2023). A large meta-analysis of 213 universal school-based SEL programs involving over 270,000 PreK-12 students showed that interventions that addressed the five core competencies increased students’ academic performance by 11 percentage points, compared to students who did not participate (Durlak et al., 2011). In another more recent review, 424 studies from 53 countries (totaling over 575,000 students) affirmed that universal SEL interventions led not only to improvements in SEL skills and school climate but also to higher academic achievement (Cipriano et al., 2023). Moreover, the positive impact of SEL on academics is long-lasting: Years after participating in SEL programs, students’ academic performance remains, on average, 13 percentage points higher than that of students who did not participate (Taylor et al., 2017). Thus, CASEL-5’s combination of specific competencies, strong evidence across contexts, and academic effects gives it an advantage over more limited frameworks.

Figure 1 provides a visualization of the intersection between the CASEL framework and the Saturday Academy. The figure shows samples of Saturday Academy activities to show how they are associated with each pillar and social and emotional learning competencies. Most of the components appear more than once, showing

Figure 1. Saturday Academy Pillars of Development and CASEL-5 Core Competencies

Saturday Academy Pillars of Development				
		Academic	Self	Workforce
CASEL Framework	Self-Awareness	Real World Community Topic, Modules	Poetry, Self Care, Teambuilding	Modules, Professional/Career Panel, Teambuilding
	Self-Management	Research Projects	Self Care, Teambuilding	Teambuilding, Research Projects
	Relationship Skills	Modules, Research Projects, Real World Community Topic	Teambuilding	Modules, Field Trip, Professional/Career Panel, Teambuilding, Research Projects
	Responsible Decision-Making	Modules, Research Projects	Teambuilding	Modules, Professional/Career Panel, Teambuilding, Research Projects
	Social Awareness	Modules, Research Project, Real World Community Topic	Teambuilding	Modules, Field Trip, Professional/Career Panel, Teambuilding, Research Projects

that learning activities have multiple uses in developing socioemotional learning and the three pillars. For example, teambuilding fits with relationship skill competency, as students work together and communicate to reach the goal of an activity. At the same time, teambuilding fits self-awareness, as students learn how to work in a team on the basis of their own strengths.

Academic Development

Five core STEM modules—Physiology, Bioethics, Data Science, Risk Factors, and Technology—with corresponding field experiences are at the core of academic development. Each module lasts approximately 20 hours and spreads out over 14 Saturdays. A Saturday Academy session lasts approximately one average school day, five and a half to six hours. Each year a community-based health issue is chosen, with student input, to be the overarching theme for the modules. Previous topics have included obesity and nutrition, cancer, respiratory health, epidemiology, mental health, and chronic illnesses and prevention. The modules break down the topic in relation to the module content areas. The following description represents examples of previous subtopics studied within the modules of the overarching topic. In the Physiology module, students learn what physiological changes occur when an individual is infected with a virus, bacteria, or other pathogen, as well as the anatomical structures and dissection. Afterward, students rotate to Bioethics, where they learn how different groups experience the health care system and how socioeconomic systems work and participate in a mock town hall. In Data Science, students are involved in analyzing, visualizing, and interpreting data such as infection rates. With respect to Risk Factors, students discuss health disparities, community resources, and health access. Finally, in Technology, students learn the topic through a technology medium (e.g., website, coding, geo-mapping, building apps). For a final product, participants bring together their diverse understanding of the topic and develop a community-based research project. Students present their final projects to their families and the community during the annual Closing Ceremony, sharing their research findings with various community stakeholders. Approximately 300 people attended ceremonies in person before COVID-19, and approximately 250 people attended virtually during the COVID-19 pandemic.

This unique, community-focused opportunity empowers students to connect a career in STEM with serving the communities from which they come.

Self and Workforce Development

Self-professional workforce development is integrated into the Saturday Academy through a unique, robust, three-tiered mentoring structure where district teachers, STEM professionals, and college interns work together to provide SA students and each other with interprofessional development and leadership support by increasing networks, learning about each other's industries, and aligning community resources and needs (Figure 2).

The Saturday Academy's staff consists of members from academic partners: Kansas City Kansas Public Schools, the University of Kansas Medical Center, and the Kansas City Kansas Community College. Additionally, most staff are members of the students' communities and alumni from the program, and at least 75% of the SA staff identify as persons of color. Racial/ethnic and gender concordance in mentoring relationships has been shown to be important for students (Kricorian et al., 2020). Our alumni mentors enrich the SA program by combining subject-matter knowledge with lived insight into the obstacles and contexts our students encounter, offering socioemotional support and guidance that resonates deeply because it is grounded in experience and shared understanding. The first tier of the mentorship model consists of industry professionals working in the program: teachers; STEM professionals (in fields such as nursing, finance, engineering, health research, computer science, entrepreneurship, and public health); and graduate educators (in areas such as biomedical research, medical school, and mental health). In the second tier, graduate students provide support, advocacy, and insight to college interns who are interested in graduate and/or professional schools. Most are members of student communities and bring a unique knowledge base and content expertise to curricula and insight into the workforce. For undergraduate students actively pursuing degrees in STEM and health, their mentors are professionals working in these fields. This relationship allows undergraduate students to learn from working professionals and, in turn, provides similar mentorship to SA middle and high school students. Undergraduate students

Figure 2. Saturday Academy Mentorship Tiers

MENTORSHIP TIERS			
ACADEMY GROUPS	Tier One PROFESSIONAL STAFF	Tier Two COLLEGE INTERNS	Tier Three STUDENT MENTORS
PROFESSIONAL STAFF	Provide interprofessional development	Provide interprofessional exposure	The Academy Way is modeled & practiced
COLLEGE INTERNS	Provide workforce & networking support	Provide peer to peer support	The Academy Way is modeled & practiced
STUDENT MENTORS	Provide alignment of major and career interests	Provide insight into college application and academics	The Academy Way is modeled & practiced
MIDDLE & HIGH SCHOOL STUDENTS	Provide insight into STEM & health careers	Provide insight into college life & schools	The Academy Way is modeled & practiced

provide insight to middle and high school students into “college life” and various college and university opportunities, which are dependent on their career and field interests. College interns provide college application guidance and career-to-major alignment with student mentors (third tier), who are primarily junior/senior-level high school students.

The third and final tier, peer-to-peer mentorship, is provided by high school student mentors to their fellow middle and high school student peers and focuses on relationship building, agency, and belongingness by the student mentors. The student mentors are junior- and senior-level high school students who have typically been at the Saturday Academy in prior years. All the student mentors who work with SA students receive ongoing coaching and training to prepare a yearly cohort of returning and new students for the Saturday Academy. Training consists of cultural competency, a code of conduct, mental health/self-care, mentorship, and programming curricula aimed at enhancing the quality of the program as well as individual mentors’ ability to work with professional colleagues from diverse backgrounds.

Importantly, all the students in programming are taught the *Academy Way*, a term coined by previous students, now alumni, to sum up how students and staff should treat each other with cultural humility, inclusion, respect, and authenticity. Poetry sessions are examples of how students and staff

practice the Academy Way. Reading original poetry allows students to foster empathy, trust, and community (Schoonover et al., 2020). Simultaneously, students use poetry to develop their voices and self-agency (Davis & Hall, 2020). Moreover, connections are made to the skill of writing and its use in various STEM and health careers, research, and academics, providing students with a well-rounded understanding of the importance of writing and its connection to their personal growth and career aspirations, as illustrated in Figure 2.

Methods

Survey Design and Implementation

Given that the goal of this study was to understand alumni’s specific perspectives on the impacts of the SA model, under the guidance of a highly experienced psychometrician, the team developed an 88-item, multiple-choice questionnaire organized around the SA student development pillars—Academic, Workforce, and Self-Development—and the CASEL-5 framework for socioemotional learning (Borowski, 2019). A literature review was conducted to identify existing instruments and potential items for the four domains of the survey: career literacy and awareness (Section 1), personal development (Section 2), socioemotional learning (Section 3), and access to resources (Sections 4, 5, 6, & 7; Valentine & Kosloski, 2021). An educational psychometrician reviewed the survey for common errors such as double-barreled,

confusing, and leading questions and made recommendations. The survey was sent to a small group of trusted colleagues for additional feedback, including time demand. The online survey was distributed to alumni via email, social media, and community connections. The survey was made available through a private Facebook group for alumni at the Saturday Academy and was administered online via Redcap. The survey period lasted for 2 months. The study protocol was reviewed and deemed exempt by the University IRB.

Data Description

In addition to demographics, the survey instrument asked participants to report their perceptions of the effects of SA in four key areas: career literacy and awareness, personal development, socioemotional learning, and access to resources. The participants responded to all statements via a 6-point Likert scale, where 1 signified *strongly disagree* and 6 represented *strongly agree*. Some questions were reverse-coded, so negative responses were assigned a lower numeric value. Two of the four key survey areas, career literacy and awareness and personal development, elicited responses before and after Saturday Academy participation. A retrospective survey design was used to collect data around socioemotional learning (Section 3) and access to resources.

Data Analysis

This study was not powered a priori to detect specific pre-post-Academy changes in the primary outcome: career literacy and awareness. Data were analyzed via descriptive methods, including means, medians, standard deviations, ranges, and proportions. For the primary aim, pre-post differences in scores for career literacy and awareness and personal development were calculated by subtracting each participant's pre-Academy response from their post-Academy response. Pairwise deletion was used for participants who were missing either a pre- or post-Academy response. Effect sizes were estimated by mean difference scores and corresponding 95% confidence intervals. Simple linear regression models were used to describe the association between the secondary data analysis and assess the impact of barriers to resource access, participant self-efficacy (an aspect of personal development) and professional network development (in the domain career literacy and awareness). We used regression

models to examine the association between barriers and outcomes and reported R^2 values to indicate the proportion of variance in outcomes explained by barriers.

Results

The most substantial improvements were observed in professional network development (in the career literacy and awareness domain) and socioemotional learning, including gains in the personal development domain. Additional improvements were noted in career literacy and access to resources. A total of 96 alumni participated in the survey. Among the 96 participants, 36 (37.5%) completed the survey only partially. The average participants were 25–34 years old ($n = 33$, 34.4%), female ($n = 33$, 34.4%), and Black/African American ($n = 27$, 28.1%). Over one third ($n = 36$, 37.5%) of those who completed at least part of the survey reported a bachelor's degree or higher in education, and more than one third ($n = 30$, 31.3%) reported working within a health profession.

Alumni reported experiencing challenges during their childhood, which is typical of an urban intensive context (Table 1, Table 2, Table 3, and Table 4). The most frequently reported challenges were access to technology at home or at school ($n = 37$, 60%); laboratory equipment and STEM supplies to learn ($n = 44$, 71%); access to research, books, and academic resources for academic work ($n = 40$, 64%); and access to updated equipment and computers ($n = 39$, 64%). Alumni also reported a lack of ACT/SAT preparation resources ($n = 40$, 64%) and STEM-focused tutoring ($n = 38$, 62%). Concerns regarding violence in their neighborhood were the item ranked highest for personal concerns ($n = 24$, 39%, median = *Strongly Agree* [this is a concern]).

Within the career literacy and awareness domain, results showed consistent improvements across all items. The survey aimed to understand how participation in the Saturday Academy had impacted alumni's knowledge and understanding of health care and/or STEM careers and career choices and provided support before and after program participation. A positive shift was noted for all items, with the greatest improvements noted in professional network development (Table 5, Questions 7, 8, 10, and 12; Appendix, Figure A1).

Similarly, within the personal development domain, items focused on relationship

development (Table 6, Questions 6 and 7) and self-efficacy (i.e., awareness, management, and responsibility) elicited the greatest shift (Appendix, Figure A2). Additionally, those who reported lower baseline career literacy and personal development levels reported the greatest improvement in these measures after they participated in the Academy (Appendix, Figures A3 and A4). Furthermore, as shown in Table 7, alumni retrospectively reported that participating in programming strengthened their sense of safety and support, increased their sense of possibility for the future, promoted positive relationships with teachers, and promoted stronger feelings of belonging. Finally, individuals with lower versus higher barriers to resources reported overall

Table 1. Challenges and Barriers to Success

Overall (n = 96)				
Question #	Questions	N (%)	Median (IQR)	Mean (95% CI)
Q1	Technology (computer or other electronic resources at school or home.	62 (64.6%)	4.00 (3.00)	3.95 (0.66, 7.24)
Q2	Laboratory equipment and STEM supplies to learn.	62 (64.6%)	4.00 (2.75)	4.10 (0.83, 7.37)
Q3	Research, books, and academic resources to complete my work.	62 (64.6%)	4.00 (3.00)	4.06 (0.75, 7.37)
Q4	Equipment and computers that were up to date.	62 (64.6%)	4.00 (3.00)	4.02 (0.63, 7.41)
Q5	ACT/SAT preparation materials for college entrance.	62 (64.6%)	4.00 (4.00)	3.92 (0.24, 7.60)
Q6	STEM focused tutoring for my academics.	62 (64.6%)	4.00 (3.00)	3.93 (0.38, 7.48)

Table 2. Cultural Competence/Humility (While in high school . . .)

Overall (n = 96)				
Question #	Questions	N (%)	Median (IQR)	Mean (95% CI)
Q1	My family could communicate with my school free of language barriers.	61 (63.5%)	5.00 (2.00)	4.52 (0.99, 8.05)
Q2	I often had to interpret English for my family.	61 (63.5%)	3.00 (5.00)	3.28 (−0.88, 7.44)
Q3	I felt prepared to work with members outside of my ethnic/racial community.	61 (63.5%)	6.00 (2.00)	5.15 (2.78, 7.52)
Q4	I was taught by teachers representing my ethnic/ racial community.	61 (63.5%)	4.00 (3.00)	4.18 (0.65, 7.71)
Q5	My academic curriculum included content and role models that were representative of my ethnic/ racial community.	61 (63.5%)	4.00 (4.00)	4.03 (0.31, 7.75)
Q6	I did not have concerns regarding my ability to relate to my fellow peers of different cultural and ethnic backgrounds.	61 (63.5%)	5.00 (2.00)	4.62 (1.60, 7.64)
Q7	I had experience in dealing with those of different socioeconomic status.	61 (63.5%)	5.00 (2.00)	4.67 (1.71, 7.63)

Table 3. Personal Concerns (While in high school . . .)

Question #	Questions	Overall (n = 96)		
		N (%)	Median (IQR)	Mean (95% CI)
Q1	I had transportation to STEM after-school programming.	61 (63.5%)	5.00 (2.00)	4.52 (0.99, 8.05)
Q2	My parents and family did not understand the importance of STEM after-school programming.	64 (66.6%)	3.00 (5.00)	3.28 (−0.875, 7.44)
Q3	I had concerns regarding violence in my neighborhood.	64 (66.6%)	6.00 (2.00)	5.15 (2.78, 7.52)
Q4	I had access to food/nutrition.	64 (66.6%)	4.00 (3.00)	4.18 (0.65, 7.71)
Q5	I supported/assisted my parents financially and/or personally (i.e.: work around the house, caretaker to younger siblings/cousins/other, caregiver to parents/guardians).	64 (66.6%)	4.00 (4.00)	4.03 (0.31, 7.75)

Table 4. Personal Support (During high school . . .)

Question #	Questions	Overall (n = 96)		
		N (%)	Median (IQR)	Mean (95% CI)
Q1	My parents related or understood my educational journey and needs.	61 (63.5%)	5.00 (2.00)	4.48 (1.15, 7.81)
Q2	My parents/family supported me seeking opportunities outside of the classroom.	64 (66.6%)	6.00 (2.00)	4.84 (1.92, 7.76)

improvements in personal development of 8.9 points (95% CI: 5.3, 12.6) and 9.2 points (95% CI: 5.9, 12.5), respectively (Appendix, Figure A5). Similar trends were observed for career literacy, with individuals with lower versus higher barriers to resources reporting overall improvements of 10.5 points (95% CI: 3.1, 17.8) and 16.8 points (95% CI: 10, 23.5), respectively (Appendix Figure A6).

Overall, findings indicate that participation was associated with improvements across career literacy, personal development, and socioemotional domains, with the greatest gains among participants who began with the lowest baseline levels.

Discussion

Structural barriers beyond academics can deeply undermine students’ success and are often overlooked by enrichment programs. Students in underserved communities are often first-generation students and must navigate their academic paths alone. Most

STEM and health pathway programs focus on structured academic support in the form of enrichment curricula; however, there is a growing need for programs to provide comprehensive services to reduce sociocultural and economic barriers, particularly for students growing up and attending school in an intensive urban context.

The alumni survey provides a unique window from the other side, that is, from the perspective of those who succeeded. It reveals important lessons into how to support students in the urban core and best practices to achieve success. In what follows, we offer key recommendations for building effective pathway programs in the urban core:

- Develop meaningful and sustainable partnerships between professional schools (e.g., medical schools), community colleges, and urban school districts to provide a foundation to meet the needs of students at the academic, cultural, and so-

Table 5. Career Literacy and Awareness

Question #	Questions		N (%)	Overall (n = 96)	
				Median (IQR)	Mean (95% CI)
Q1	I was motivated to pursue a career in health care and/or STEM.	Pre	71 (74.0%)	5.00 (2.00)	4.6 (1.8, 5)
		Post	66 (68.8%)	6.00 (2.00)	5.03 (2.7, 7.4)
		Difference	66 (68.8%)	0 (1.00)	0.39 (-2.2, 3.1)
Q2	I was aware of the different types of careers related to health care (i.e., clinical or nonclinical) and/or STEM (i.e., science, technology, engineering, or math).	Pre	71 (74.0%)	4.00 (3.00)	4.04 (0.75, 7.33)
		Post	66 (68.8%)	5.50 (2.00)	4.94 (2.67, 7.21)
		Difference	66 (68.8%)	0 (2.75)	0.96 (-2.81, 4.72)
Q3	I could identify the steps needed to enter a career in health care and/or STEM.	Pre	71 (74.0%)	4.00 (2.00)	3.89 (0.68, 7.10)
		Post	66 (68.8%)	5.00 (2.00)	4.83 (2.67, 6.99)
		Difference	66 (68.8%)	0 (2.00)	0.96 (-2.64, 4.61)
Q4	I could make educated career choices.	Pre	71 (74.0%)	4.00 (2.00)	4.10 (1.20, 7.00)
		Post	66 (68.8%)	5.00 (2.00)	5.02 (2.88, 7.16)
		Difference	66 (68.8%)	0.50 (2.00)	0.96 (-2.16, 4.07)
Q5	I could explain how different skills relate to different careers in health.	Pre	71 (74.0%)	4.00 (2.00)	3.93 (0.99, 6.87)
		Post	66 (68.8%)	4.00 (2.00)	4.76 (2.41, 7.11)
		Difference	66 (68.8%)	0 (2.00)	0.92 (-2.72, 4.57)
Q6	I was able to clearly communicate my personal career interests.	Pre	71 (74.0%)	4.00 (2.50)	4.13 (1.17, 7.09)
		Post	66 (68.8%)	6.00 (2.00)	5.03 (2.60, 7.46)
		Difference	66 (68.8%)	0 (2.00)	0.94 (-2.47, 4.35)
Q7	I knew how to advocate for myself with respect to my career goals (e.g., calling to schedule an interview, contacting references, identifying mentors).	Pre	71 (74.0%)	4.00 (2.00)	3.86 (0.59, 7.13)
		Post	66 (68.8%)	5.00 (2.00)	4.95 (2.64, 7.26)
		Difference	66 (68.8%)	0.50 (2.75)	1.17 (-2.16, 4.50)
Q8	I had connections to professionals in the health care and/or STEM fields.	Pre	71 (74.0%)	4.00 (4.00)	3.76 (0.04, 7.48)
		Post	66 (68.8%)	5.50 (2.00)	4.97 (2.50, 7.44)
		Difference	66 (68.8%)	1.00 (3.00)	1.30 (-3.03, 5.63)
Q9	I could see the connection between a career in health care and/or STEM and improving my community.	Pre	71 (74.0%)	5.00 (3.00)	4.34 (1.18, 7.50)
		Post	66 (68.8%)	6.00 (2.00)	5.21 (2.94, 7.48)
		Difference	66 (68.8%)	0 (2.00)	0.91 (-2.60, 4.42)
Q10	I had opportunities to talk with several professionals about their career path.	Pre	71 (74.0%)	4.00 (3.00)	3.83 (0.30, 7.36)
		Post	66 (68.8%)	6.00 (2.00)	5.11 (2.72, 7.50)
		Difference	66 (68.8%)	1.00 (3.00)	1.38 (-2.83, 5.59)
Q11	I had a good idea of the career path I wanted to pursue.	Pre	71 (74.0%)	5.00 (4.00)	4.08 (0.65, 7.51)
		Post	66 (68.8%)	5.00 (2.00)	4.94 (2.29, 7.59)
		Difference	66 (68.8%)	0 (2.00)	0.94 (-2.73, 4.60)

		Overall (n = 96)			
Question #	Question #		N (%)	Median (IQR)	Mean (95% CI)
Q12	I was well connected to other students with similar career interests.	Pre	71 (74.0%)	4.00 (3.00)	3.68 (0.17, 7.19)
		Post	66 (68.8%)	6.00 (2.00)	5.11 (2.80, 7.42)
		Difference	66 (68.8%)	1.00 (3.00)	1.53 (−2.31, 5.37)
Q13	I felt confident about my professional future.	Pre	71 (74.0%)	4.00 (3.00)	4.14 (0.95, 7.33)
		Post	66 (68.8%)	6.00 (2.00)	5.03 (2.56, 7.50)
		Difference	66 (68.8%)	0 (2.00)	0.96 (−2.48, 4.39)
Q14	I felt confident about my personal future.	Pre	71 (74.0%)	4.00 (3.00)	4.17 (0.99, 7.35)
		Post	66 (68.8%)	6.00 (2.00)	5.02 (2.45, 7.59)
		Difference	66 (68.8%)	0 (2.00)	0.92 (−2.51, 4.35)

cioeconomic levels. This unique approach provides comprehensive and continuous assistance to students, as each partner creates opportunities to meet their unique needs.

- Integrate programs in existing community structures such as local school districts and bring known community leaders such as teachers, administrators, alumni, and community stakeholders (i.e., local poets, community development groups, mental health professionals, and others) into leadership positions. This inclusiveness creates a sense of belonging among students and provides a smoother transition as students navigate education from the middle/high school level to undergraduate studies (either at a two- or four-year school) and finally to professional/graduate schooling. Students feel connected to institutions, and the curriculum is connected to their realities. More importantly, partnerships help ensure that programs are designed to meet the community's true needs.
- Plan and budget for the unique realities of students growing up in intensive urban contexts. The students who needed the most support were those for whom the Saturday Academy had the greatest impact. This impact was especially notable for students who had the least access to and availability of STEM resources, who were concerned

about violence in their communities, and who did not have a supportive group (i.e., parents, family members, fellow peers, etc.) in their lives. By having a culturally inclusive and emotionally safe social environment for students, the Saturday Academy created the foundation for students to be their authentic selves, not be afraid to ask questions or seek assistance, and form positive relationships.

- Focus on professional identity development and network expansion. A student's self-perception can create barriers to their academic success. For alumni, having a professional community with shared values and backgrounds was important to their success; it provided them with a sense of belonging and allowed them to see themselves as leaders and changemakers in their chosen fields. Moreover, the SA mentorship model allows participants to interact with mentors who are members of their community and current professionals in STEM fields. Mentors, many of whom are from underrepresented groups and/or alumni, not only bring technical knowledge to the table but also play a role as cultural brokers between the students' realities and the paths to a career in STEM. Their presence creates a real possibility for participants to start developing networks and professional connections that can assist with educational and job applications.

Table 6. Personal Development

Question #	Questions		N (%)	Overall (n = 96)	
				Median (IQR)	Mean (95% CI)
Q1	I was confident in my academic abilities.	Pre	64 (66.6%)	5.00 (1.00)	4.45 (2.00, 6.90)
		Post	62 (64.6%)	5.00 (2.00)	5.03 (2.93, 7.13)
		Difference	62 (64.6%)	0 (2.00)	0.581 (-1.89, 3.05)
Q2	I knew how to monitor my academic efforts.	Pre	64 (66.6%)	4.00 (1.00)	4.27 (1.49, 7.05)
		Post	62 (64.6%)	6.00 (2.00)	5.15 (3.03, 7.27)
		Difference	62 (64.6%)	0 (2.00)	0.903 (-1.94, 3.75)
Q3	I knew my strengths.	Pre	64 (66.6%)	4.00 (2.00)	4.16 (1.26, 7.06)
		Post	62 (64.6%)	6.00 (2.00)	5.15 (2.99, 7.31)
		Difference	62 (64.6%)	1.00 (2.00)	0.984 (-1.56, 3.53)
Q4	I knew how my strengths could impact my success.	Pre	64 (66.6%)	5.00 (2.00)	4.20 (1.22, 7.18)
		Post	62 (64.6%)	6.00 (2.00)	5.19 (3.13, 7.25)
		Difference	62 (64.6%)	0 (2.00)	0.984 (-2.17, 4.14)
Q5	I had a desire for learning.	Pre	64 (66.6%)	5.00 (2.00)	4.64 (1.99, 7.29)
		Post	62 (64.6%)	6.00 (2.00)	5.13 (2.90, 7.36)
		Difference	62 (64.6%)	0 (1.00)	0.50 (-1.44, 2.44)
Q6	I understood how relationships could assist me in school and my career.	Pre	64 (66.6%)	4.00 (2.00)	4.11 (1.17, 7.05)
		Post	62 (64.6%)	6.00 (2.00)	5.29 (3.06, 7.52)
		Difference	62 (64.6%)	1.00 (2.00)	1.24 (-1.94, 4.42)
Q7	I understood the benefits of teamwork to my future career.	Pre	64 (66.6%)	4.00 (3.25)	4.11 (0.97, 7.25)
		Post	62 (64.6%)	6.00 (2.00)	5.24 (3.01, 7.47)
		Difference	62 (64.6%)	1.00 (2.00)	1.19 (-1.73, 4.11)
Q8	I felt comfortable working with people from different cultures.	Pre	64 (66.6%)	5.00 (2.00)	4.78 (2.33, 7.23)
		Post	62 (64.6%)	6.00 (0)	5.52 (3.56, 7.48)
		Difference	62 (64.6%)	0 (2.00)	0.774 (-1.42, 2.97)
Q9	I had the tools to overcome barriers.	Pre	64 (66.6%)	4.00 (2.25)	3.88 (0.92, 6.84)
		Post	62 (64.6%)	5.00 (2.00)	5.00 (2.79, 7.21)
		Difference	62 (64.6%)	1.00 (2.00)	1.15 (-1.83, 4.13)
Q10	I knew how to set goals.	Pre	64 (66.6%)	4.00 (2.00)	4.06 (1.06, 7.06)
		Post	62 (64.6%)	6.00 (2.00)	5.05 (2.72, 7.38)
		Difference	62 (64.6%)	0.500 (2.00)	1.02 (-2.16, 4.20)

Table 7. Socioemotional Learning (During my time in Saturday Academy, the program's faculty and staff...)

Question #	Questions	Overall (n = 96)		
		N (%)	Median (IQR)	Mean (95% CI)
Q1	Helped me feel valued.	62 (64.6%)	6.00 (2.00)	5.24 (3.12, 7.36)
Q2	Noticed some of my strengths.	62 (64.6%)	6.00 (1.75)	5.26 (3.16, 7.36)
Q3	Inspired me to use my strengths in different ways.	62 (64.6%)	6.00 (1.75)	5.27 (3.07, 7.47)
Q4	Connected me with other adults (teachers, professional mentors) who could guide me in pursuing my goals etc.	62 (64.6%)	6.00 (2.00)	5.16 (2.77, 7.55)
Q5	Encouraged me to have an open mind toward my peers and new ideas.	62 (64.6%)	6.00 (2.00)	5.32 (3.22, 7.42)
Q6	Pushed me to take responsibility for my actions.	62 (64.6%)	6.00 (2.00)	5.32 (3.28, 7.36)
Q7	Provided opportunities to take initiative.	62 (64.6%)	6.00 (1.00)	5.44 (3.38, 7.50)
Q8	Created a safe space for me to share my thoughts and experiences.	62 (64.6%)	6.00 (2.00)	5.27 (2.92, 7.62)
Q9	Inspired me to see other possibilities for my future.	62 (64.6%)	6.00 (1.00)	5.32 (3.14, 7.50)
Q10	Encouraged me to finish tasks even if they were hard for me	62 (64.6%)	6.00 (2.00)	5.29 (3.21, 7.37)
Q11	Worked with me to solve problems and reach goals	62 (64.6%)	6.00 (2.00)	5.31 (3.29, 7.33)

- Localize the curriculum and employ culturally responsive pedagogical approaches. STEM curricula that are elevated to the experiences and contributions of people of color in STEM are crucial for students not only in forming their STEM identity but also in their retention in the field. The SA curriculum is focused on current issues affecting the community, making it possible for students to see the connections between careers in health and improving their communities as well as how their background has the potential to maximize their impact in the field. The curriculum takes a strengths-based approach with

a focus on community assets and existing structures that can help improve outcomes through system change.

- Focus on sociocultural factors beyond academics. By addressing systemic barriers (i.e., access to and availability of STEM resources, community violence, and academically/socially supportive groups), programs tailor a unique and supportive environment for underserved students, who are often first generation, to move forward with the social capital and knowledge of the STEM/health culture in terms of their academic success and personal

vitality. Key recommendations to remove additional barriers faced by students who live in an urban context include the development of key relational partnerships, having community leaders as instructors, incorporating budgetary flexibility to address the unique challenges faced by students, focusing on personal development and network expansion, and providing a localized curriculum.

- Develop a cohesive and strong evaluation plan that includes community feedback. Ongoing collection and analysis of program data and community feedback ensures that programming meets student and community needs, expectations, and preferences. Students, teachers, parents, and families should have a voice in the program's direction and services (i.e., food offered, STEM and health topics, student resources, program time frames, other). This openness is particularly key in working with communities whose voices have traditionally been silenced. Finally, longitudinal tracking of programs' outcomes is essential to ensure that the approach is effective, to develop evidence-based strategies to pathway work, and to persuade funding agencies of the value of investing in the future of underserved talented youth.

Conclusion

Effective pathway programs in under-resourced urban contexts require a comprehensive approach that goes beyond academics. Through alumni engagement; socioemotional support; and localized, strengths-based programming, programs like the Saturday Academy provide a holistic model of support that empowers students to overcome systemic barriers; build professional networks; and thrive academically, socially, and professionally. By combining these elements, such programs not only foster immediate student success but also help address the underrepresentation of students of color in STEM and advance equity in health and community outcomes. Future research should build on these findings using shorter, targeted surveys complemented by qualitative interviews and longitudinal designs to clarify the mechanisms through

which pathway programs influence career development, self-efficacy, and professional identity formation, particularly among students facing the greatest structural barriers.

Limitations of the Study

The results of this study must be interpreted with caution, and several limitations should be considered. Among the 96 individuals who completed the survey, 36 did so only partially; thus, the sample size was smaller than anticipated and might not be representative of the larger population. Missing data were handled using pairwise deletion, which may introduce bias if the data were not missing completely at random. There is also a threat of response bias, both social desirability bias—due to personal connections between participants and program staff—and recall bias, particularly considering the retrospective nature of the study. Social desirability bias is especially important to note in this context, as alumni may have felt pressure to provide favorable responses that reflect positively on the program, either out of loyalty, gratitude, or perceived obligation. Future research could mitigate this limitation by incorporating validated social desirability scales and emphasizing respondent anonymity more explicitly in survey instructions. At the same time, it is worth noting that participation in the program emphasized structured reflection and ongoing feedback, which may have helped to normalize honest self-assessment and reduce the extent of such bias. Additionally, survey length impacted alumni completion, as it created time constraints and decreased survey engagement. Thus, it is likely that the responses of those who completed the survey are systematically different from those who did not participate in the survey, affecting the generalizability of the results. Given the sparsity of studies, there remains an opportunity to continue exploring alumni perceptions of the role of pathway programming in their professional career choices. In addition to our alumni Facebook group, we plan to engage alumni in recruiting additional participants via chain sampling. Furthermore, on the basis of what we learned in the current study, we plan to explore the effects of the Academy on those who needed the most (i.e., lower baseline scores for professional network development and career literacy) but with shorter surveys as well as key informant interviews that can provide further insight into the Saturday Academy's impact.



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Appendix

Figure A1. Career Literacy and Awareness Domain Effect Sizes Represented by Means (Black Marker) and 95% Confidence Intervals

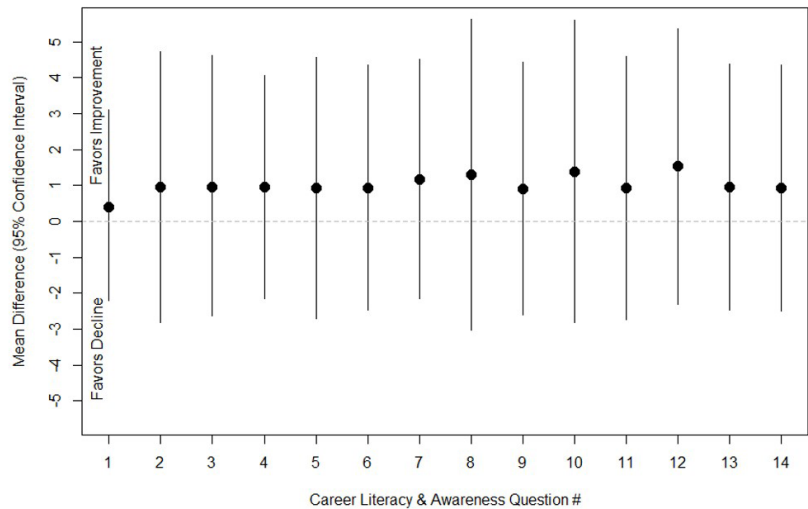


Figure A2. Personal Development Domain Effect Sizes Represented by Means (Black Marker) and 95% Confidence Intervals

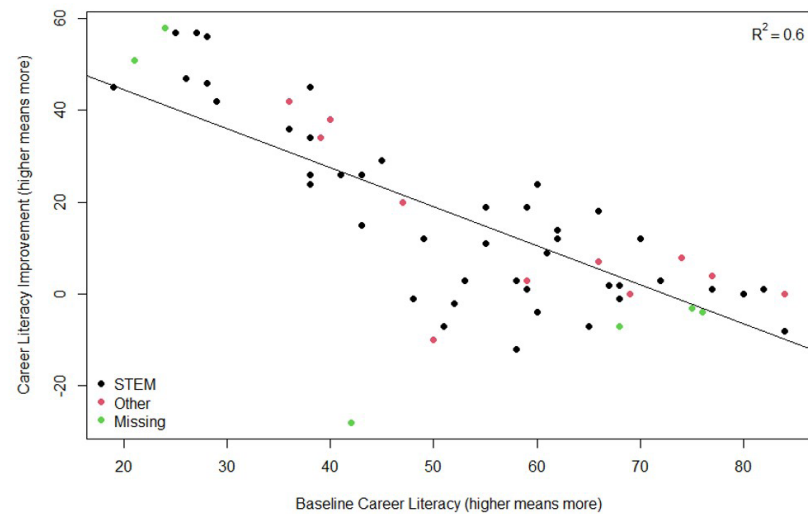


Figure A3. Scatterplot Showing Changes in Career Literacy (y axis) as a Function of Baseline Career Literacy (x axis), With Participant Responses Labeled According to Their Self-Reported Career Field

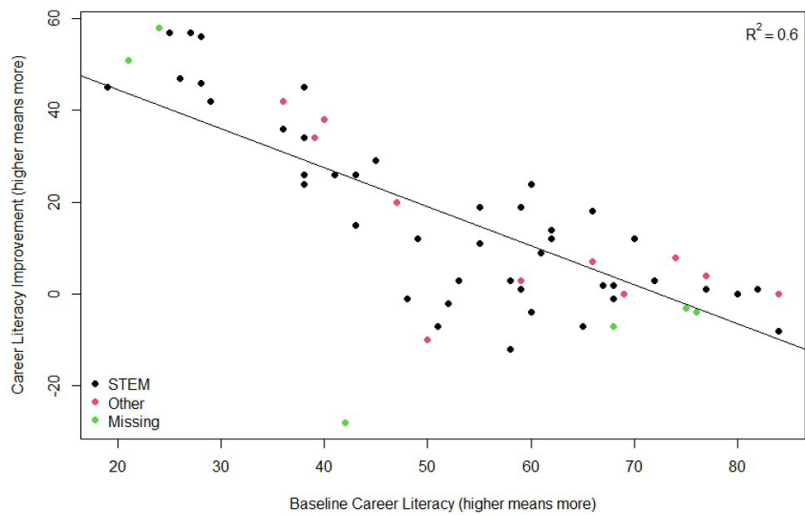


Figure A4. Scatterplot Showing Changes in Personal Development (y axis) as a Function of Baseline Personal Development (x axis), With Participant Responses Labeled According to Their Self-Reported Career Field

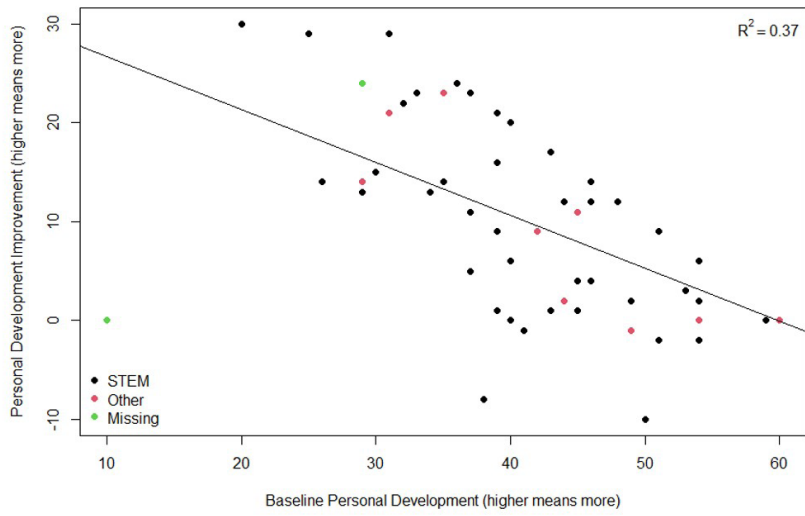


Figure A5. Boxplots Showing Changes in Personal Development (y axis) for Those With Low Versus High Self-Reported Barriers to Resources (x axis)

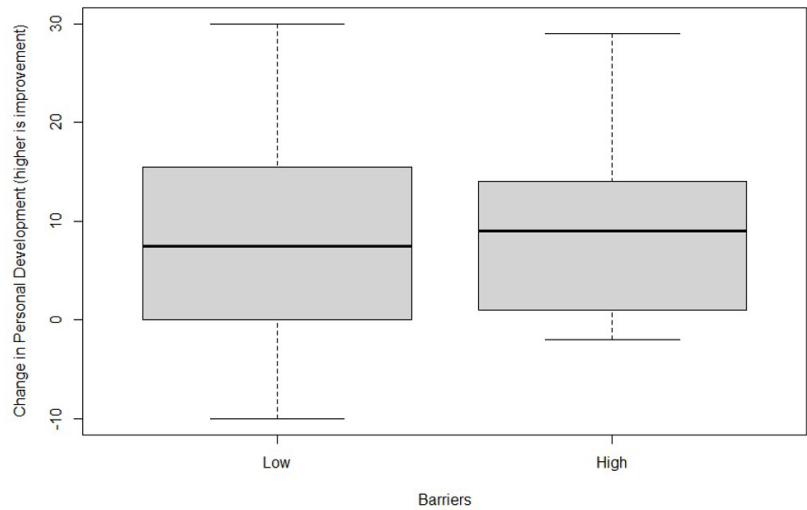
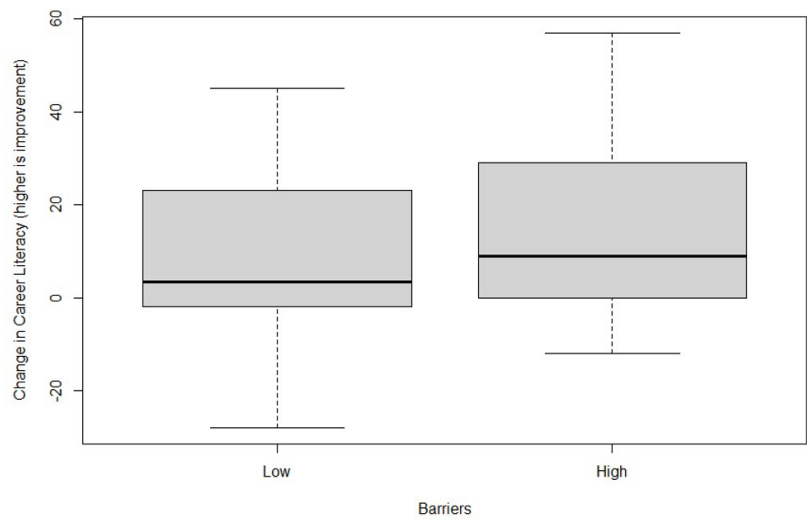


Figure A6. Boxplots Showing Changes in Career Literacy (y axis) for Those With Low Versus High Self-Reported Barriers to Resources (x axis)



Aspire to Achieve: A Student-Led, Service-Learning Approach for SAT Equity

Ngoc-Trang Adrienne H. Nguyen, Nikhila Achanta, and Ayesha Baloch

Abstract

On average, low-income students score significantly lower on the SAT than their wealthier peers, causing a cascade of disadvantages that decrease opportunities for college admission and receiving financial aid. To address this disparity, undergraduates at the University of Houston created Aspire, a service-learning project that provides SAT tutoring and postsecondary preparation to students at a predominantly Hispanic, low-income urban high school. From 2019 to 2023, 125 students participated in Aspire, attending five to 11 weekly sessions per semester for up to 22 hours of SAT and postsecondary prep mentorship. Of these students, 53 met inclusion criteria for analysis, with results showing that students in the Aspire program exhibit statistically significant SAT score improvements, with a mean increase of 54 points on a 1,600-point scale. This study demonstrates that undergraduate-led service-learning programs can improve outcomes for underserved students at a relatively low cost, offering a model for replication by other universities.

Keywords: SAT, socioeconomic disparities, underserved students, volunteer tutoring, service-learning



Standardized test scores play an integral role in the college admissions process. Scores on exams such as the SAT are one of the most significant determinants of college admissions and scholarship awards for high school students (Montgomery & Lilly, 2012). However, high school students from low socioeconomic status (SES) backgrounds consistently perform worse on the SAT than peers with higher SES—a trend that perpetuates, and sometimes exacerbates, income-based disparities in higher education and achievement (Alvero et al., 2021; Bastedo et al., 2025; Belasco et al., 2018; Corin et al., 2020; Garg et al., 2023; Huang, 2024; Lutz et al., 2018; Othman, 2025; J. Smith et al., 2022; Yun et al., 2024; Zheng & Yu, 2024).

A major contributor to this disparity is unequal access to SAT preparation resources. Students from higher SES families are more likely to have access to and utilize SAT preparation tools such as private tutors

and commercial test preparation courses, which can cost hundreds to thousands of dollars and are therefore inaccessible to many low-SES students (Zheng & Yu, 2024). As a result, lower SES students frequently receive less intensive and/or less sophisticated preparation for this high-stakes exam. Illustratively, a 2023 study identified that children from the wealthiest 1% of U.S. households were 13 times more likely than children from low-income families to score at least a 1,500 on the SAT (Chetty et al., 2023). Although commercial coaching can yield modest score gains—approximately 10 to 20 points per section—these gains disproportionately benefit higher income students due to greater access to paid tutoring, repeated test-taking opportunities, and sustained preparation (Goodman et al., 2020). Together, these findings underscore a central challenge in the test-preparation landscape: Although coaching can improve SAT performance, its benefits are unevenly distributed and may reinforce existing socioeconomic inequalities.

SAT score gaps have meaningful downstream consequences, as even relatively small differences in performance can shape students' postsecondary trajectories. SAT scores influence college admissions, scholarship eligibility, degree completion, and professional success (Reeves & Halikias, 2017; Shaw, 2025). Using a regression discontinuity design, one study demonstrated that minimum SAT score thresholds for admission to public universities in Georgia significantly affected college enrollment and bachelor's degree attainment, particularly among lower scoring, lower income students. These findings highlighted that SAT performance differences of 30 to 40 points could have substantial long-term impacts on educational and economic outcomes (Goodman et al., 2017). How SAT scores are interpreted also matters: When admissions officers are given contextual information about applicants' high schools or neighborhoods, they are more likely to recommend admission for high-achieving students from low-SES backgrounds (Bastedo et al., 2025). Collectively, this literature emphasizes the high stakes of SAT performance for low-SES students and the importance of interventions that address inequities in both preparation and evaluation.

Expanding access to SAT preparation presents a promising opportunity to mitigate barriers to higher education and achievement. Prior research demonstrates that preparation programs can substantially improve students' performance on the paper SAT (Montgomery & Lilly, 2012; Weatherholtz et al., 2020; What Works Clearinghouse, 2016). One study of over 545,000 students found that practicing for 6 or more hours with Official SAT Practice on Khan Academy was associated with an average 21-point increase on the SAT. This score increase nearly doubled to 39 points for students who supplemented practice time with "best practice behaviors," such as reaching higher difficulty levels in skills or completing full-length practice exams (Weatherholtz et al., 2020). Although a 21- to 39-point score increase is lower than the gains often advertised by commercial coaching companies, differences of this magnitude can be decisive in college and scholarship application processes (Appelrouth et al., 2017; Briggs, 2009; Westrick et al., 2020).

Importantly, emerging evidence further suggests that low-cost, community-based

interventions can help narrow SES-based gaps in SAT performance. One randomized controlled trial found that free, volunteer-based SAT tutoring enhanced with automated feedback led to increased student engagement and performance (Yun et al., 2024). Beyond score gains, engagement in SAT prep and other college application activities has been shown to foster a broader culture of college attendance among students from low-SES backgrounds (Grodsky & Riegle-Crumb, 2010; Hurwitz et al., 2017; Schneider et al., 2014). Thus, expanding access to effective SAT prep programs can improve test scores for low-SES students while also equipping them with the tools and confidence to pursue higher education, ultimately reducing systemic disparities in academic achievement and opportunity.

Taken together, the literature suggests that targeted and accessible preparation interventions have the potential to mitigate disparities in SAT performance and larger socioeconomic inequalities (Buchmann et al., 2010; Summers et al., 2015; Yun et al., 2024). However, relatively few recent studies have examined grassroots, low-cost interventions designed specifically to support underserved students. In particular, there is limited empirical evidence on service-learning models that integrate SAT coaching with mentorship and social support, and how such approaches influence not only test performance but also students' academic confidence, engagement, and long-term college readiness. This study addresses this gap by examining Aspire, a service-learning project created by undergraduate students at the University of Houston (UH), a large, urban university in the Southwest. Service-learning is a teaching method integrating classroom instruction with structured service to the surrounding community (Kiely, 2005; B. H. Smith et al., 2011). Aspire was developed in a UH course called Introduction to Civic Engagement, a class that promotes service-learning and the study of community issues, civic participation, and sustainable service. Students in this course created Aspire to address educational inequality by providing no-cost, high-quality SAT preparation for low-income high school students.

Aspire is currently staffed and implemented by UH undergraduates with oversight from university faculty and administrators at the partner school, a large urban high school located in a high-poverty Houston neighborhood. At this school, roughly 96% of stu-

dents qualify for free or reduced lunch, and most students are minorities, with 92.3% of students identifying as Hispanic or Latino (Texas Education Agency, 2024a). By evaluating Aspire students' SAT outcomes alongside their reported experiences with the program, this study seeks to assess whether a small-scale, student-led, low-cost intervention can produce meaningful SAT performance gains while fostering confidence and engagement among students from underserved communities. Additionally, this article will explore strategies to enhance the efficacy of similar programs, informed by an analysis of Aspire's performance in previous semesters.

Methods

Intervention

Program Structure

From 2019 to 2023, the "Aspire" intervention was conducted weekly after school at the partner high school, spanning 6 to 11 consecutive weeks during both the fall and spring semesters of each academic year. This methodology constituted five to 10 program sessions per semester. Figure 1 highlights changes in program length, session duration, session content, and other calendar variations from 2019 to 2023. Details regarding Aspire's organizational structure and cost of implementation are provided in Appendix A and Appendix B, respectively.

Despite considerable variation in program structure across semesters, each semester's program began with a survey documenting students' past SAT/PSAT scores, which were self-reported by students and subsequently verified through official score reports provided by the community partner. In the Fall 2021, Spring 2022, Fall 2022, and Fall 2023 semesters, a full-length diagnostic SAT exam was conducted one week prior to the first program session. This diagnostic test was an official College Board SAT Practice Exam administered by Aspire executives under realistic testing conditions, and students' scores served as their preintervention scores if they had no past score data available. However, data was preferably drawn from mentees' most recently taken official or practice SAT or PSAT exams. For the Fall 2019 and Spring 2023 semesters, a diagnostic test was not conducted, and students' most recent PSAT or SAT score reports were used instead as the baseline score for mentees (Figure 1).

After initial data collection, subsequent SAT prep sessions followed a curriculum designed by the Aspire executive board, with the semester calendar strategically arranged around students' in-school SAT exam dates. Students were encouraged throughout the program to take the in-school test, mainly to mitigate financial barriers to SAT registration. These exams, which typically occurred in November or December for fall semester cohorts and in March or April

Figure 1. Aspire Program Structure per Semester

	Incentive?	Diagnostic?	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8	Session 9	Session 10	Session 11
Fall 2019 (2 hours)	No	No	SAT	SAT	No session (Open House)	SAT	SAT	SAT	SAT	SAT	College	Campus visit	College, Celebration
Spring 2020 (2 hours)	No	Diagnostic exam	SAT	SAT	SAT	SAT	Cancelled (COVID)	Cancelled (COVID)	Cancelled (COVID)	Cancelled (COVID)	Cancelled (COVID)	-	-
Fall 2020 (2 hours; Virtual)	No	No	SAT	No session (Holiday)	SAT	SAT	SAT	SAT	SAT	College	College, Celebration	-	-
Fall 2021 (2 hours)	College basket	Diagnostic exam	SAT, College	College	SAT	SAT	SAT	SAT	SAT	SAT	SAT	College	College, Celebration
Spring 2022 (2 hours)	College basket	Diagnostic exam	SAT	SAT	SAT	No session (In-School SAT)	SAT	No session (Holiday)	SAT	College	Life skills	Celebration	-
Fall 2022 (2 hours)	2 VISA gift cards (\$50 each)	Diagnostic exam	SAT	SAT, College	SAT, College	SAT, College	No session (Holiday)	SAT, College	SAT	SAT	SAT	College, Celebration	-
Spring 2023 (1h15m)	2 VISA gift cards (\$50 each)	No	SAT	SAT	SAT	SAT	No session (Holiday)	College, Celebration	-	-	-	-	-
Fall 2023 (1h15m)	1 VISA gift card (\$100)	Diagnostic exam	SAT	SAT	SAT	SAT	SAT	College, Life skills	Celebration	-	-	-	-

Note. Various facets of Aspire's structure changed across semesters, such as the program length, session duration, and session content (e.g., SAT preparation, college preparation, life skills). In general, the program intervention was conducted over 6 to 11 weeks, with each session lasting from 1.5 to 2 hours.

for spring cohorts, guided the curriculum schedule to optimize student preparation. Each semester's curriculum was designed using various SAT resources, such as the College Board website and official practice SAT exams. Curriculum materials consisted of Google Slides presentations, in-session worksheets (ISWs), and out-of-session worksheets (OSWs), each covering specific SAT topics. Other topics, such as life skills and college applications, were also covered in the Aspire curriculum via similar formats; a detailed breakdown of these subjects and the specific SAT topics taught by mentors is provided in Appendix C.

All curriculum materials were made available on the Aspire program website, alongside answer keys for students to check their work. Google Slides presentations provided overviews of SAT sections and the types of questions asked in each section (e.g., Problem-Solving and Data Analysis questions within the Math section of the exam). Both ISWs and OSWs were composed of past questions from official College Board exams and were presented to students in either physical or digital formats, depending on the semester. OSWs were used to monitor improvement between individual sessions and to emphasize consistent practice outside sessions. To incentivize active, sustained participation in the program, session engagement and completion of OSWs comprised a portion of the assessment determining which mentee(s) received an award during the program's final celebration. Further information on these awards and their distribution is provided in Appendix D.

Mentor Recruitment, Training, and Demographics

At the beginning of each academic year, Aspire recruited UH undergraduate students, from freshman to senior standing, to serve as volunteer mentors. There were neither upper nor lower boundaries on the number of mentors recruited. However, many after-school education programs and near-peer mentoring programs have observed that a "two-way" mentor-mentee relationship—where the relationship is built on open communication, trust, and mutual respect—can empower students in psychosocial and academic domains alike. This dynamic is best supported by a lower mentee-to-mentor ratio, which allows mentors to more closely monitor mentee progress and provide frequent, tailored, and adaptive guidance, resulting in higher quality mentee instruction

and stronger perceived support (Akinla et al., 2018; Hudson, 2016; White et al., 2023). Thus, Aspire executives strove to recruit a sufficient number of mentors such that each high school student who registered to participate in the program was matched with at least one dedicated mentor.

After committing to volunteer with Aspire, mentors underwent comprehensive training that familiarized them with SAT content, emotional and cultural competency, and the core elements of the Aspire curriculum. Once sessions began, all high school mentees were assigned to Aspire mentors in a 1:1 or 1:2 mentor-to-mentee ratio. These assignments were determined through a matching system, where the circumstances and interests of a mentee were paired with an appropriately knowledgeable and skilled mentor. Mentors and mentees were encouraged to form relationships with one another in order to build trust, improve the learning environment, and boost student morale.

The undergraduate students who served as mentors in Aspire came from diverse backgrounds and areas of study. For the Fall 2019, Fall 2021, Spring 2022, Fall 2022, Spring 2023, and Fall 2023 cohorts, 48.8% of mentors identified as Asian/Pacific Islander, 22% of mentors identified as White/Caucasian, 14.6% of mentors identified as Hispanic/Latino, 12.2% of mentors identified as Black/African American, and 2.4% of mentors identified as both African American and Hispanic/Latino (see Appendix E1). Additionally, 31.7% of mentors were students in the College of Liberal Arts and Social Sciences, 29.3% of mentors were students in the College of Natural Sciences and Mathematics, 26.8% of mentors were students in the College of Business, 4.9% of mentors were students in the College of Engineering, 2.4% of mentors were students in the College of Education, 2.4% of mentors were students in the College of Technology, and 2.4% of mentors were students in the College of Architecture and Design (see Appendix E2).

Mentee Recruitment

Aspire utilized multiple approaches in recruiting mentees. Typically, interest forms and flyers were distributed to students at the participating high school via Aspire's community partner, who also advertised the program by word of mouth. Specific students were also occasionally referred to the program by instructors at the high school.

However, starting in Spring 2023, Aspire began to utilize in-person advertisement to increase mentee enrollment: Before the start of the program, Aspire mentors and executives traveled to the partner high school campus and shared in-class presentations on Aspire to junior and senior students. Presentations were followed by the distribution of promotional flyers, which contained QR codes linked to a Google Form that students used to register for the program. When comparing the average student participation in 2023 (Spring 2023, Fall 2023) to that observed in 2022 (Spring 2022, Fall 2022), adopting this in-person advertisement strategy led to a 170% increase in mentee enrollment.

Study Participants

The participants in this study were juniors and seniors who attended the participating institution: a large, urban, public secondary school in Houston. Much of the student population at the partner school are minorities: as of 2024, 92.3% of students are Hispanic and 5.9% of students are African American, with the remaining 1.8% of students distributed across various ethnic backgrounds. Furthermore, 95.9% of students are considered economically disadvantaged (i.e., qualifying for free or reduced-price lunch or other public assistance), compared to 79.6% of students in the larger school district (Texas Education Agency, 2024a, 2024b). Aspire students were roughly representative of their school's overall student body: Of the 48 students with ethnicity data available, 77.1% identified as Hispanic or Latino, and 16.7% identified as Black or African-American. Similarly, of the 47 students with the corresponding data available, 97.9% were considered economically disadvantaged, and 66% identified as first-generation students (i.e., students whose parents did not complete a baccalaureate degree; Council for Opportunity in Education, 2024).

Participation in Aspire was voluntary—students joined the program through self-selection and were admitted regardless of their prior test scores. There were a total of nine cohorts ($N = 125$) from Fall 2019 to Fall 2023, with five fall cohorts and four spring cohorts. Cohort size ranged from 5 students to 32 students per semester. For analysis in this study, students were filtered through various inclusion criteria designed to ensure consistent exposure to Aspire's SAT prep curriculum prior to their outcome

exam, comparable baseline measures, and the ability to calculate a valid pre- versus postprogram score change.

First, students needed to attend at least one SAT-prep session prior to the SAT administration used as their “postprogram” exam date. Because the focus and number of Aspire sessions varied by semester, and some students took their official SAT exam before the program concluded, only the number of SAT-relevant sessions a student attended *prior* to their “postprogram” test date was considered. This approach allowed for a more robust estimate of each student's exposure to Aspire's SAT preparation content before their exam and the potential effect of that exposure on any score changes.

The second inclusion criterion was that students' preprogram scores needed to come from an official SAT administration (i.e., students who used a PSAT score or an Aspire-administered diagnostic SAT exam score as their preprogram score were excluded). This requirement ensured comparability of baseline scores across students, as the PSAT uses a different scoring scale than the SAT, and even high-quality diagnostic exams can differ meaningfully from official testing conditions. For example, Aspire's diagnostic exams were typically administered after school in the evening, outside the standard morning testing hours; this and other environmental differences may have influenced test performance in ways unrelated to students' academic ability. Analysis was therefore limited to official SAT scores to minimize measurement variability and to strengthen inferences about score change attributable to students' participation in Aspire, rather than those attributable to differences in test format or scaling.

Finally, students for whom a pre- versus postprogram score change could not be computed were automatically excluded. Students with no available preprogram scores (i.e., students who had never taken the SAT prior to Aspire participation and who also did not take the PSAT or Aspire diagnostic) and students with no available postprogram scores (i.e., students who did not take an official SAT exam after participating in Aspire) were therefore automatically excluded.

As a result, the intervention group consisted of 53 students, distributed across six cohorts: Fall 2019, Fall 2021, Spring 2022,

Fall 2022, Spring 2023, Fall 2023. No demographic data was collected for any of the Fall 2019 students. However, of the intervention group students from whom demographic data was collected, 33 reported their sex, 29 reported their ethnicity, 30 provided information on whether they qualified for free/reduced lunch or other public assistance, and 29 reported the highest education level attained by their parents (see Appendix F). Based on this information, approximately 72.7% of students were female, roughly 82.8% of students identified as Hispanic or Latino, and 13.8% of students identified as Black or African American. Of the intervention group students with the available corresponding data, 96.7% were considered economically disadvantaged, and 76.7% identified as first-generation students.

Data Analysis

This study was retrospective and used a mixed-methods design, incorporating both quantitative and qualitative analyses to evaluate the impact of Aspire on participants' SAT performance and perceptions of readiness for postsecondary pathways. Data collection was performed by various Aspire executives over the course of 2019–2023, and included students' ethnicities, details on their socioeconomic background (e.g., whether students qualified for free/reduced lunch, the highest education level achieved in their household, whether they qualified as a first-generation student), students' composite SAT score prior to joining the program, students' composite SAT score after participating in the program, and students' feelings of readiness for college/postsecondary pathways before and after Aspire participation. Student demographic data (i.e., sex, ethnicity, and socioeconomic background) was not collected during Fall 2019; however, in subsequent semesters, demographics were self-reported by students using a Google Form, where students also provided their preprogram SAT scores. These self-reported preintervention scores were then verified through official College Board score reports provided by the community partner. Similarly, after the program's conclusion each semester, students' postprogram SAT scores were collected from faculty at the partner school, who obtained student scores through the official College Board reporting system.

Quantitative analysis of data involved the use of paired *t*-tests to compare composite

SAT scores before and after participation in Aspire. Individual students' score changes were calculated both in terms of points and as a percentage of students' initial SAT scores, as seen in Equations (1) and (2). Overall cohort performance on the SAT before and after Aspire participation was also compared across cohorts using analysis of variance (ANOVA). Subjects were excluded from the study if they had not taken the PSAT, SAT, or any similar diagnostic exam prior to starting the program; if they did not take the SAT after completing our program; and/or if they attended fewer than two SAT-prep sessions prior to their second exam date.

Score change (points) = Postprogram score - Preprogram score (1)

$$\text{Score change (\%)} = \frac{\text{Postprogram score} - \text{Preprogram score}}{\text{Preprogram score}} \times 100\% \quad (2)$$

The qualitative component of this study explored Aspire's impact on students' academic confidence and perceived preparedness for standardized testing, as well as students' perceptions of their overall program experience. Student readiness prior to and following program participation, learning priorities, and gains across readiness domains were analyzed using data collected from beginning-of-program (BOP) and end-of-program (EOP) surveys administered between Fall 2019 and Spring 2023. However, survey administration and design were inconsistent across semesters, and postprogram survey responses were available for only a subset of cohorts, limiting the availability of matched pre- versus post-program data. Both BOP and EOP surveys included Likert scale items and open-ended questions assessing confidence in standardized test-taking and program experience. Surveys also included items related to other domains like college preparation and financial literacy, which were retained in the analysis to provide contextual insight into students' broader academic planning but were not treated as primary outcomes (see Appendix G). Because survey design varied across semesters—including differences in question wording, response scale ranges (e.g., 1–5 vs. 1–10), and item inclusion—it was not possible to track identical constructs (e.g., test preparedness) consistently across cohorts or even within some cohorts over time. As a result, Likert scale responses were summarized descriptively, with mean scores standardized as a percentage of the maximum.

Table 1. Student Statistics by Cohort

Cohort	<i>n</i>	Average score change (points)	Average score change (%)	Average number of sessions attended
Fall 2019	20	60.5	7.56	4.10
Fall 2021	9	73.3	7.78	2.89
Spring 2022	1	20.0	2.74	3.00
Fall 2022	3	83.3	8.88	5.76
Spring 2023	6	46.7	4.95	1.83
Fall 2023	14	32.9	4.08	2.25

Note. Columns represent the cohort size, average score change (relative to preprogram score) in points, average percent score change, and average number of sessions attended.

Open-ended survey responses were reviewed and coded into recurring topical categories aligned with Aspire’s program objectives, such as scholarship and financial aid, PSAT/SAT test improvement, college admission processes, and testing strategies. The frequency of responses within each category was tabulated to describe student-reported needs and experiences across cohorts.

The Institutional Review Boards of the University of Houston approved this study, and informed consent was obtained from all participants.

Results

Initially, data from nine cohorts were collected (*N* = 125). However, 72 students did not meet inclusion criteria; therefore, final data analysis was performed on only 53 students. Table 1 displays statistics for these students by cohort, defined as semester and year of program participation (see Appendix H for individual student statistics). The mean preprogram composite SAT score was 934 ± 139. The number of sessions attended did not differ significantly across cohorts when examined using a one-way analysis of variance test, *F*(5, 47) = 2.601, *p* = .0371. Nevertheless, the large standard deviation observed in preprogram scores indicates wide variation in initial ability for our students.

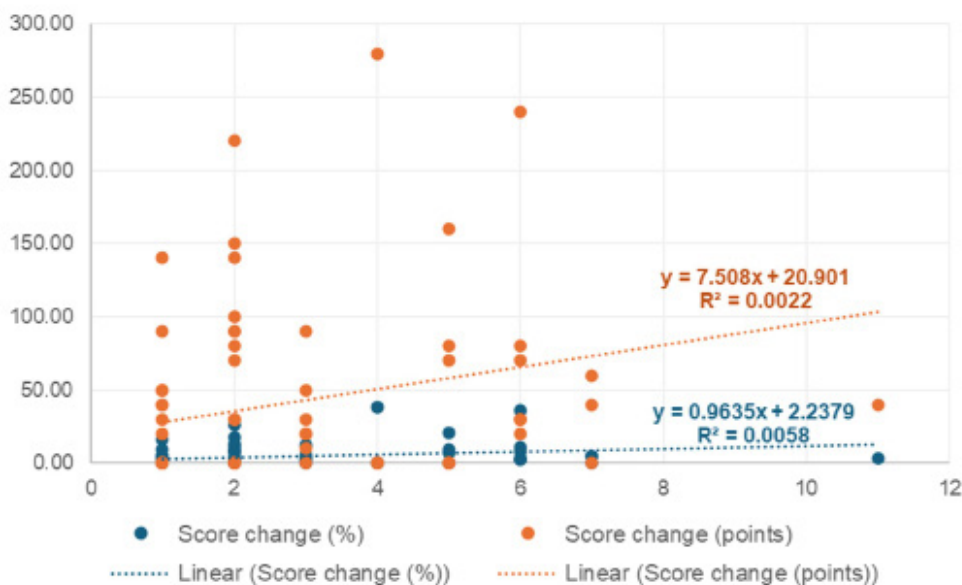
Pre- Versus Postintervention SAT Performance

There was a significant difference between composite SAT scores prior to program participation versus after, with scores increasing by an average of 54 points, *t*(52)

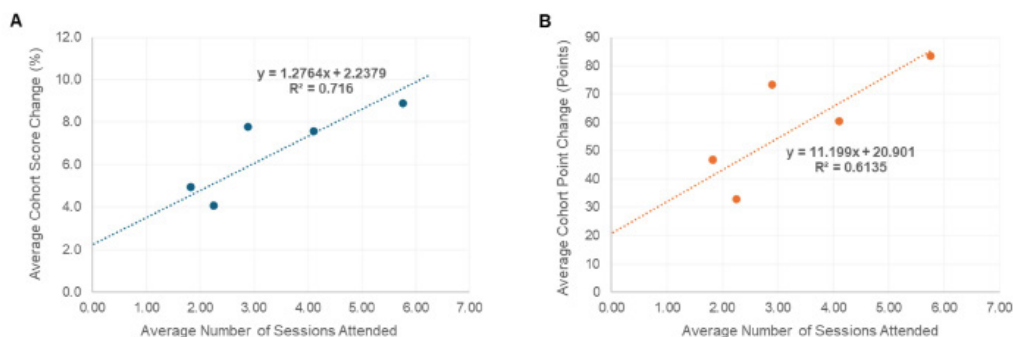
= 6.1366, *p* < .001. Neither score change in points [*F*(5, 47) = 0.677, *p* = .643] nor percentage score change [*F*(5, 47) = 0.432, *p* = .824] were significantly different across cohorts when examined using one-way analysis of variance tests. See Appendix I for a comparison of participants’ average SAT scores before and after the program, broken down by cohort, as well as the average districtwide and schoolwide SAT scores for their graduating class.

Of the 53 students assessed, 69.8% showed improvement in composite scores after attending at least one intervention session: 41.5% of all students demonstrated score increases of 50 points or greater, while 15.1% of students improved their scores by at least 100 points. The average postprogram composite score of this sample of students was 988 ± 134, representing a score increase of 0.39 standard deviations. Notably, this score improvement was significantly greater than the boost expected from simply retaking the SAT: A 2020 study assessing over 11 million SAT-takers from the high school classes of 2006–2014 found that, on average, retaking the SAT produces scores 0.15 standard deviations higher than first-take scores (Goodman et al., 2020). For our sample of students, this difference would have equated to a 20.9-point increase on a 1,600-point scale, or a 2.24% score increase. Analysis of student data via paired *t*-test provided strong evidence that the average SAT score increase expected from Aspire participation is significantly greater than 20.9 points, *t*(52) = 3.7762, *p* < .001.

A scatterplot of all data points used to generate Table 1 was used to create Figure 2, which compared individual students’ score

Figure 2. Linear Correlation Between Individual Attendance and Score Change

Note. The number of Aspire sessions an individual student attended is plotted against their percent score change (blue) and against their score change in points (orange).

Figure 3. Linear Correlation Between Cohort Attendance and Score Change

Note. Spring 2022 cohort excluded. Figure 3A (left) graphs the average number of Aspire sessions attended by all students in a cohort versus the cohort's average percent score change. Figure 3B (right) graphs the average number of Aspire sessions attended by all students in a cohort versus the cohort's average score change in points.

improvement based on the number of Aspire SAT prep sessions they attended prior to their exams. On average, Aspire students attended 3.31 sessions before their postintervention exam attempt, equating to 6.1 hours of SAT instruction. Interestingly, however, the number of sessions students attended prior to this SAT exam did not exhibit a strong relationship with score improvement. With the y -intercept set at 2.24 to account for the score increase expected to result from

retaking the SAT, plotting percent score change against number of sessions attended produced a linear regression equation of $y = 0.9635x + 2.2379$, $R^2 = .0058$. Plotting score change in points against number of sessions attended, with the y -intercept set at 20.9 to account for retake effects, produced a linear regression equation of $y = 7.508x + 20.901$, $R^2 = .0022$.

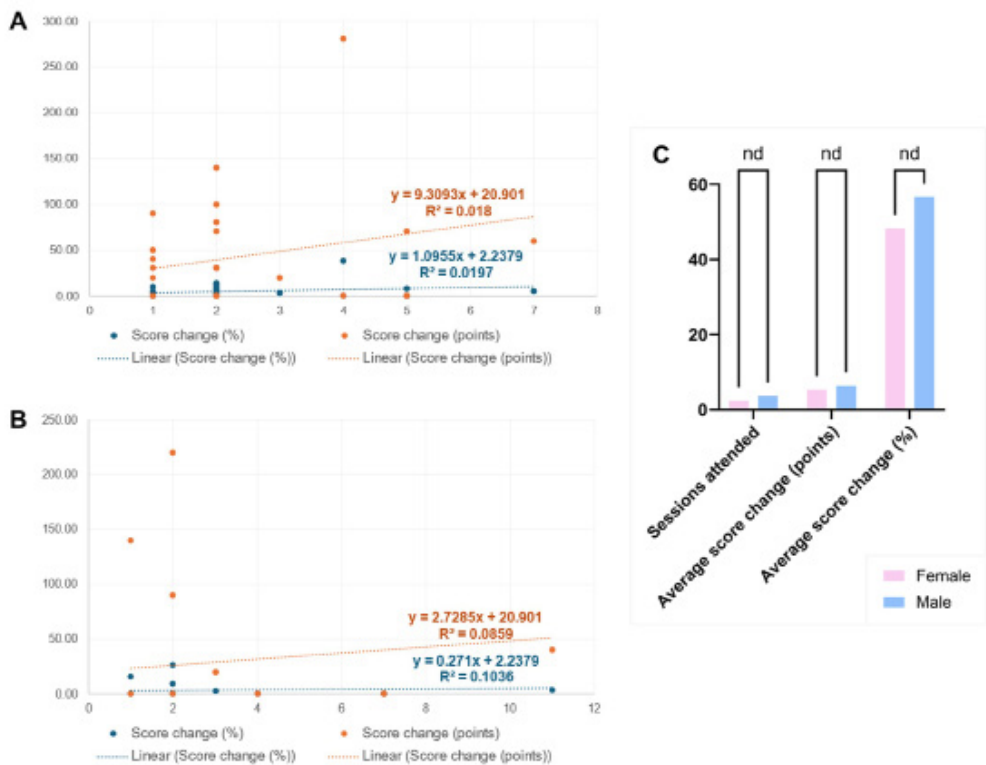
To mitigate the wide variation between individual students, Figure 3 was created

to compare each cohort’s average number of sessions attended to the cohort’s average score improvement. The Spring 2022 cohort was not included in these analyses due to having only one student who fit all inclusion criteria. With the y-intercept set at 2.24 to account for retake effects, plotting each cohort’s average percent score change against the average number of sessions attended produced a linear regression equation of $y = 1.2764x + 2.2379$, $R^2 = .716$. Plotting each cohort’s average score change in points against the average number of sessions attended, with the y-intercept set at 20.9 to account for retake effects, produced a linear regression equation of $y = 11.199x + 20.901$, $R^2 = .6135$.

No demographic data was collected for the Fall 2019 cohort, and only some students in the Fall 2021 through Fall 2023 cohorts provided demographic data. However, based

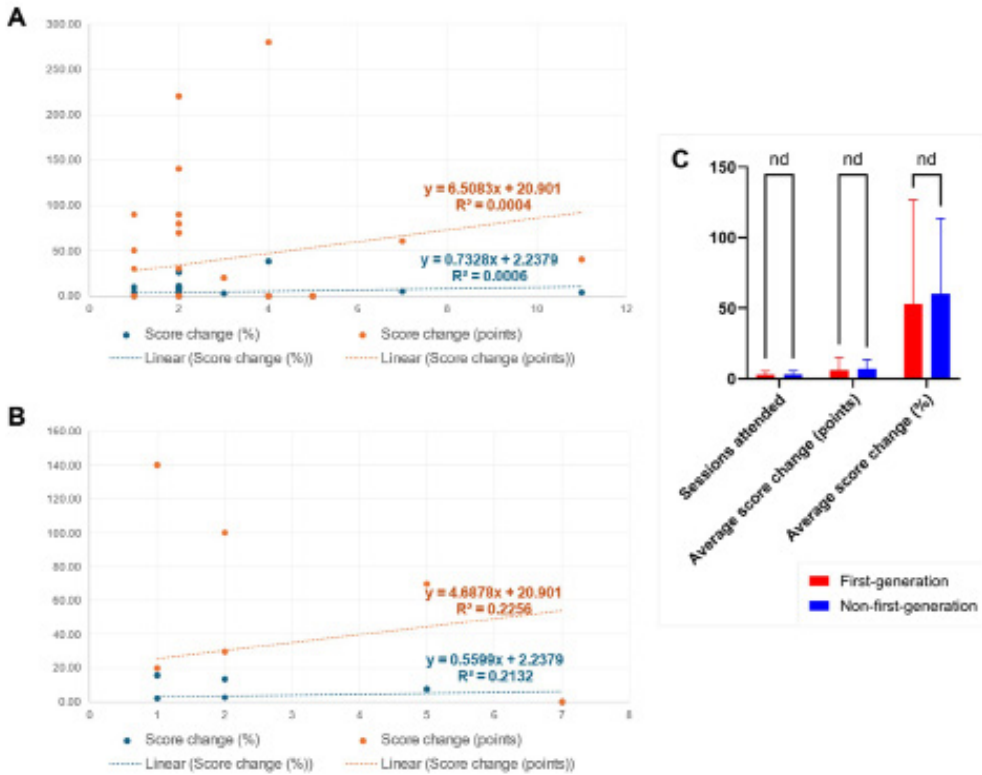
on all students who did have available demographic data, no significant differences in the number of sessions attended, the score change in points, or the percent score change were observed between male versus female students and between first-generation versus non-first-generation students. Preprogram scores also did not significantly differ between male students (980 ± 136) versus female students (961 ± 146), nor did they differ significantly between first-generation (952 ± 146) versus non-first-generation (987 ± 164) students. In the same vein, postprogram scores did not differ significantly between male students ($1,037 \pm 123$) versus female students ($1,010 \pm 149$) nor between first-generation ($1,005 \pm 156$) versus non-first-generation students ($1,047 \pm 130$). Interestingly, the linear correlation between sessions attended and score change (both in terms of points and percent change) was stronger

Figure 4. Attendance and Score Change Comparison Between Male Versus Female Students



Note. Figure 4A (top left) graphs the number of sessions attended versus the score change for female students. Figure 4B (bottom left) graphs the number of sessions attended versus the score change for male students. Figure 4C (right) compares the average number of sessions attended, the average score change in points, and the average percent score change for male versus female students. No significant differences in any of these three variables were observed between sexes.

Figure 5. Attendance and Score Change Comparison Between First-Generation Versus Non-First-Generation Students



Note. Figure 5A (top left) graphs the number of sessions attended versus the score change for first-generation students. Figure 4B (bottom left) graphs the number of sessions attended versus the score change for non-first-generation students. Figure 4C (right) compares the average number of sessions attended, the average score change in points, and the average percent score change for first-generation versus non-first-generation students. No significant differences in any of these three variables were observed.

for male students than for female students, though the linear regression equations for female students had greater slopes (Figure 4). Similarly, the linear correlation between sessions attended and score change was stronger for non-first-generation students than for first-generation students, although the linear regression equations for first-generation students had greater slopes (Figure 5).

Student Perspectives on Readiness, Mentorship, and Program Value

Descriptive analysis of qualitative data was performed to contextualize SAT score outcomes by examining students' self-reported needs at program entry and their postprogram experiences following their participation. While standardized test scores captured changes in academic performance, survey responses provided insight and may explain the informational and experiential

mechanisms through which Aspire's service-learning and mentorship model may support standardized test preparation and confidence. Because survey instruments varied across semesters and cohort sizes, these findings are presented descriptively to highlight key take-home messages about student experiences rather than to support inferential or comparative claims. Supplementary figures summarizing these patterns are provided in Appendix G.

Across cohorts with available preprogram SAT-relevant data (Fall 2021), students most frequently reported needs related to standardized test improvement ($n = 5$). Beginning-of-program responses observed from Spring 2022 ($n = 1$) and Spring 2023 ($n = 2$) semesters indicated uneven baseline readiness, with comparatively lower confidence in domains directly tied to SAT performance; students reported PSAT/SAT

improvement and testing skills and strategies as priority learning topics. Postprogram responses observed from the Fall 2019 and Spring 2022 semesters reflected higher perceived confidence and preparedness in domains aligned with Aspire's SAT readiness objectives, such as test preparedness and test-taking confidence. Open-ended responses further emphasized students' appreciation for Aspire's structure, particularly the personalized guidance they were able to receive from mentors to address their unique needs. Students emphasized the value of having dedicated time to ask questions and revisit challenging topics with mentors, as mentors were not only patient and encouraging but also readily available to review difficult material as many times as needed. When asked what they perceived to be the most beneficial aspect of Aspire, the majority of students highlighted the mentor-mentee relationship, stating, "The personal connection between mentors and students [creates] a comfortable environment where students can be vulnerable and feel that the listener can relate to them." Several students also reported forming stronger bonds with their peers over the course of the program, and when asked in an anonymous online survey whether they would recommend Aspire to future students, 100% of students said yes. These observations align with broader research on tutoring and supplemental instruction, which finds that programs are most meaningful when tutors foster positive relationships that allow instruction to be tailored to students' strengths and needs, suggesting mentor-mentee relationships as a potential mechanism for improved academic engagement and achievement (White et al., 2023).

Collectively, these student-reported perspectives suggest that Aspire's service-learning and mentorship model may support SAT score improvement through targeted, iterative test-focused instruction. These adaptive changes may function to increase student confidence, financial and postsecondary guidance, and perceived readiness to engage with postsecondary pathways.

Discussion

This study provides preliminary evidence for the feasibility and efficacy of service-learning projects, like Aspire, to narrow the achievement gap for underserved students. When comparing students' performance on their preprogram exam to their SAT attempt

after participating in Aspire, students demonstrated an average score improvement of 54 points on a 1,600-point scale. Our results may also be interpreted to show a dosage effect of Aspire sessions: Based on the linear regression model created with individual students' data, student scores increased by an average of 7.5 points for each additional session attended. When referencing the linear regression model created using cohort averages, student scores can be estimated to increase by 11.2 points per additional session attended. These observations are supported by findings that increased contact in SAT preparation classes leads to higher score increases (Montgomery & Lilly, 2012). Additionally, based on the R^2 values generated for average cohort statistics, 71.6% of the variance in percent score improvements and 61.4% of the variance in point score change can be attributed to participation in Aspire. Considering the many factors that can impact SAT performance, this is a robust amount of variance attributable to our intervention.

Our findings also demonstrate that Aspire's model of free, small-group instruction utilizing volunteer undergraduate mentors may be equally or more effective than costly, private, one-on-one tutoring and commercial test prep programs, which are considered the gold standard of SAT coaching. Whereas one 2010 study showed that commercial SAT prep courses and private tutoring increase scores by about 30 points and 37 points, respectively, our results demonstrate an average 54-point increase in student scores (Buchmann et al., 2010). This finding is particularly significant given the results of a 2009 survey of college admissions counselors, which indicated that a 20-point increase in the Math section or a 10-point increase in the Reading section was enough to significantly improve a student's chances of gaining admission into their institutions (Goodman et al., 2017). Therefore, it is likely that the score improvement seen by Aspire students is enough to improve chances of college admissions, positively influence the choice of schools, and lead to higher rates or amounts of scholarships and financial aid awards disbursed.

Limitations and Future Directions

This research should be regarded as a pilot study, and the results should be interpreted in light of various limitations. For instance, the number of Aspire sessions students

attended was not strongly correlated with score improvement: In the Fall 2021 cohort, Student 62 did not demonstrate any changes in score despite attending seven sessions, whereas Student 64 exhibited tremendous improvement despite attending only two sessions. However, success on the SAT can be influenced by a wide range of factors, both internal and external. Test-day issues such as sleep deprivation, calculator issues, and environmental distractions can significantly affect performance. Furthermore, given the demographics of the participating high school and therefore of Aspire attendees, students may face challenges shaped by socioeconomic factors, such as access to stable internet for online resources, having a quiet place to study, working a part-time job, having parents who are knowledgeable about standardized exams and the college admissions process, and so on. All these obstacles and more can limit students' ability to study and/or their availability to attend prep sessions, regardless of internal motivation; consequently, a student can underperform for a variety of reasons that are not tracked in this study.

This study is also subject to several limitations regarding the nature of Aspire participation and the inclusion criteria used for analysis. Because students self-selected into Aspire—and because inclusion in the study sample required taking an official SAT exam both before and after participating in the program—our sample may overrepresent students who were already more academically engaged or driven to improve their SAT scores. These factors limit the generalizability of our findings and make it challenging to fully isolate the effects of Aspire participation from any preexisting student characteristics. Additionally, although it was necessary for analytic rigor, restricting the study sample to students with official baseline SAT scores substantially reduced our sample size and may have excluded students who benefited from Aspire but lacked complete testing records. Given these constraints, our observed score changes should be interpreted cautiously and viewed as preliminary evidence rather than definitive measurements of Aspire's impact.

Another limitation is the issue of mentee attrition, which also affected our sample size and has been a significant issue for Aspire almost every year. Several factors likely contribute to attrition, such as competing academic or personal commitments, lack of

motivation, and/or insufficient support from home. To address these factors, future iterations of our program should consider strategies to improve student retention, including increasing parent involvement. For example, requiring a parent's signature on a registration form for Aspire could increase accountability by ensuring students have another person encouraging them to stay committed to attending sessions. Increased teacher involvement could also be beneficial—school faculty may be able to help advertise the program, encourage participation, remind students of sessions, or even offer extra credit for attending sessions as motivation for students to stay engaged. Providing snacks during every session and rewarding mentees for consistent attendance has also proven effective in recent cohorts. Future iterations of our model should thus pursue a multipronged approach, implementing various additional strategies to reduce attrition among students. Mentee attendance aside, future programs may also benefit from exploring the minimum score increase needed on the revised SAT to incur benefits in the college admission process. This outcome could be accomplished with a larger sample that is also followed longitudinally for acceptance into and graduation from an institution of higher education.

Another factor to consider is the impact of cohort differences, particularly the shift in college admissions policies following the COVID-19 pandemic. The test-optional movement, which gained momentum as colleges began to suspend SAT/ACT requirements in Spring 2020, has altered the motivation and mindset of many students. According to recent data, the number of schools adopting test-optional or test-blind admissions policies has nearly doubled since 2020. For the 2025–26 application cycle, 85.4% of the 2,247 colleges in the FairTest database were test-optional and 3.3% were test-free; these numbers have increased to 86.4% and 3.6% respectively for the 2026–27 cycle (FairTest, 2026). This shift may have altered student attitudes toward the SAT: Some students may feel less pressure to prioritize test prep if they believe their scores are no longer critical for college admissions, which could impact their engagement in programs like Aspire, as well as their willingness to take full advantage of the resources Aspire offers. Understanding these cohort differences is essential when assessing differences in attendance and score improvement between

cohorts, and for adapting the program to meet students' evolving needs and motivations.

Finally, variation in program structure and curriculum across semesters may have influenced Aspire's efficacy. Changes in session content, session duration, teaching methods, and the number of available mentors can all affect how well students absorb the material. For instance, certain semesters may have placed greater emphasis on personalized mentoring, and others may have focused more on test-taking strategies or group instruction. These shifts can create inconsistencies in the overall effectiveness of the program from one cohort to the next, and it may be necessary to evaluate which approaches yield the best outcomes to refine the curriculum going forward.

Study Implications

Socioeconomic status affects achievement throughout the educational continuum, from influencing elementary school test scores to determining the resources available at home, the quality of students' learning environments, and the social capital that can be used to improve students' academic experience (Black et al., 2016; Dahlke et al., 2023; Lin et al., 2020; Shekhar et al., 2024; Sirin, 2005; Stitzel & Raje, 2022; Zwick, 2004). Thus, the inequalities that manifest in poorer performance on the SAT may begin before a student has even set foot in the classroom. Although Aspire does not address the earlier causes of educational disparities, it may provide a model for a late-stage, service-learning intervention to lessen the far-reaching effects of socioeconomic inequality. Considering the score gains of our specific student population, our model may have the potential to diminish the income achievement gap for low-income students who identify with traditionally underserved demographics. Furthermore, Aspire students receive not only individualized mentorship, but also the opportunity to build strong peer-to-peer connections in a supportive environment. This dynamic provides social support that may act as a protective factor in mitigating the impact of SES on academic performance (Cygrymus & Lent, 2023; Malecki & Demaray, 2006; Schneider et al., 2014; Strang, 2015).

It is also important to note that our model provides an SAT preparation service at no cost to students. The Princeton Review,

which is a leading commercial test preparation provider, charges \$949–\$2,349 per student for an SAT preparation class and \$1,750–\$6,650 for up to 18 hours of private SAT tutoring, according to 2024 prices (Princeton Review, n.d.). Conversely, Aspire's primary costs, which mainly entail printing worksheets and providing snacks for each session, amount to less than \$1,000 per year. To illustrate, costs for the Fall 2023 semester were approximately \$450, equating to an average of \$26.31 per student. The cost per student is likely even lower, considering that Aspire's snack purchases also feed mentors. Thus, for less than the cost of a single large-classroom subscription to a commercial program, our model has been able to serve anywhere from five to 32 students per semester, addressing not only disparities in SAT prep access but also knowledge gaps related to post-secondary preparation: In addition to SAT tutoring, Aspire provides extensive support for students throughout the college application process and mentorship on various life skills, from financial literacy to job interviews. This comprehensive approach has encouraged students to pursue opportunities they might have otherwise hesitated to explore, helping them secure scholarships, gain admission to various colleges, and feel more confident about transitioning to the next phase of their academic and professional careers.

Additionally, based on years of mentor testimony, the undergraduate students who volunteer as Aspire mentors gain valuable skills from their participation, including leadership, cultural sensitivity, professional communication, teaching skills, creative problem-solving, goal-setting, and strategic planning, all while learning about educational inequality and the diffuse effects of poverty. Mentors' ages, academic pathways, and high school SAT scores have varied widely, and some Aspire mentors never took the SAT, much less participated in SAT prep programs themselves. However, these diverse backgrounds and experiences, along with the variety of majors represented by Aspire mentor cohorts, suggest that just about any college student who is willing to make the commitment is capable of being an effective mentor. Although not objectively measured, our program has also influenced the career trajectories and interests of the undergraduate students involved, inspiring careers in fields from social work to academia.

Whereas our program focuses on serving low-income and minority students in an urban setting, a previous study has demonstrated that students in rural areas face similar disparities in SAT performance (Herman et al., 2013; Schneider et al., 2014). Given the success seen in urban settings, expanding our low-cost SAT mentorship model to benefit students in rural areas could help level the playing field, highlighting the potential of service-learning initiatives to address educational inequities across diverse contexts. Ultimately, the Aspire model offers civic-minded universities—whether urban or rural—an opportunity to bridge the gap in access to SAT preparation for low-income students, thereby reducing systemic disparities in academic achievement and opportunity. By providing meaningful development opportunities for both students and mentors, service-learning programs like Aspire foster a collaborative environment that empowers all participants to uplift their communities, combat the effects of socioeconomic inequality, and reach their full potential.



Author Note

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Appendix A. Program Structure and Key Stakeholders

Aspire is a collaborative initiative involving several groups: the Aspire executive board, program directors, community partners, mentors from the University of Houston, and mentees from the partner school. The Aspire executive board is comprised of a group of highly dedicated college students who exhibit commitment and passion for the project's mission. These executives are selected for their positions after an interview process with program directors, who are UH faculty that agree to serve and guide the direction, communications, and cohesiveness of the program. Similarly, Aspire's community partner is a designated teacher at the partner school who agrees to serve as a program supervisor, advocate, and liaison to the partner school's students, faculty, and administrative staff, and as a key benefactor in ensuring the success of the program.

Appendix B. Program Costs

Both mentors and mentees are responsible for the cost of transportation to and from after-school sessions. Mentors are able to carpool with other Aspire mentors or arrange alternative transport, but they may need to pay for gas, the cost of which may be reimbursed by the University of Houston. Beginning with the Fall 2022 semester, Aspire began awarding scholarships (distributed as Visa gift cards) to the one to two students with the highest attendance and engagement throughout the program. In Fall 2022 and Spring 2023, two \$50 Visa gift cards were awarded; in Fall 2023, one \$100 gift card was awarded. These scholarships, each of which costs approximately \$102 in total, are distributed during the celebration hosted during the final program session. Other program expenses include snacks for each session, printing costs for in-session worksheets and out-of-session worksheets, and teaching supplies, such as whiteboards, markers, folders, and erasers. Overall, Aspire's primary costs—which mainly encompass snacks, printing, and supplies—amount to less than \$1,000 per year.

Appendix C. Curriculum Topics

The Aspire curriculum covers a wide range of topics related to SAT preparation, college readiness, and life skills. Resources and curricula are available for all topics; however, not every topic is covered each semester. Non-SAT topics like college applications and post-secondary preparation are interspersed in small volumes throughout each session and/or taught based on individual mentee interests. Although these topics are important for closing the knowledge gap for students at underresourced high schools, Aspire's primary focus is improving students' performance on the SAT. These subjects thus constitute a small portion of the curriculum, and the special topics covered vary each semester based on each cohort's interests. Similarly, Aspire's program calendars, which outline one to three specific topics per session, vary by semester and merely serve as a suggested framework for mentors and mentees. Each mentor-mentee pairing is encouraged to customize their calendars to address the mentee's unique needs and interests, and the vast majority of mentor-mentee pairs elect to do so. Below is an overview of topics covered in Aspire's curriculum.

- **SAT Math**
 - *Algebra*: Powers and roots; factoring; expressions; solving equations; systems of equations; linear functions, equations, and inequalities; and interpreting linear models
 - *Geometry and trigonometry*: Area and volume; lines, angles, and triangles; right triangles and trigonometry; circles; and degrees and radians
 - *Problem-solving and data analysis*: Averages, statistics, and probability; percents, proportions, ratios, and rates; and word problems and reading data
 - *Advanced math*: Exponents and radicals, exponential versus linear growth, non-linear functions, synthetic division, complex numbers, and absolute value
- **SAT Reading and Writing**
 - *Reading*: Process of elimination, strategies for approaching different passages
 - *Writing*: Literary devices; standard English conventions; sentence structure; subject-verb agreement; parallelism; comparisons; pronoun errors; pronouns, person, and number; dangling modifiers; verb tense; irregular verbs; adjectives versus adverbs; mood, voice, style, and diction; concision, cohesion, and organization; and idioms
- **College**
 - *College applications*: College application deadlines; safety, match, and reach schools; choosing a school; ApplyTexas and CommonApp; college essays; college interviews; and FAFSA, loans, and scholarships
 - *Alternative pathways*: Trade schools, community college
 - *College life*: Choosing a major, extracurriculars, common college misconceptions, housing, study abroad, work-life balance, campus jobs, and work-study programs
- **Life skills**
 - *Professional communication*: Using LinkedIn, sending professional emails
 - *Job interviews*: Common questions and how to answer, interview practice, and interview etiquette
 - *Resumes and cover letters*: Sections and formatting, how to describe experiences more effectively, example resumes, and resume review
 - *Financial literacy*: Budgeting and making financial decisions, how taxes work, managing credit and debit, choosing a credit card, opening a bank account (checking and savings), and living on your own (paying for housing, bills, insurance, car payments, etc.)

Appendix D. Final Celebration and Mentee Awards

The final session of each semester's program is a celebration of student efforts. Food and drink is provided, and a mentor panel is hosted, allowing mentees to ask mentors questions about various program topics, such as how mentors navigate college responsibilities. Additionally, beginning in Fall 2022, Visa gift cards are awarded during the celebration to the mentees who have shown the greatest engagement in the program. This achievement is measured via a point system, where points are awarded based on mentee attendance and the number of out-of-session worksheets (OSWs) completed. One point is awarded per session attended and per OSW completed, with OSW completion verified and recorded by mentees' respective mentor(s). Linking the Visa gift cards to this point system is designed not only to incentivize consistent participation in the program, but also to recognize the students who have devoted significant effort to their improvement, encouraging them to maintain their commitment to their future success. This being said, final celebrations ultimately provide mentors an opportunity to celebrate mentees' progress, disburse mentee awards, and foster a supportive and welcoming environment for all parties.

Appendix E. Mentor Characteristics

Table E1. Mentor Demographics

Mentor race	<i>n</i>	Percent of total (%)
Asian/Pacific Islander	20	48.8
White/Caucasian	9	22.0
Hispanic/Latino	6	14.6
Black/African American	5	12.2
Hispanic/Latino and Black/African American	1	2.4

Note. Demographic data for all Aspire mentors in the Fall 2019, Fall 2021, Spring 2022, Fall 2022, Spring 2023, and Fall 2023 cohorts (*n* = 41).

Table E2. Mentor Areas of Study

Mentor degree program	<i>n</i>	Percent of total (%)
College of Natural Sciences & Mathematics	12	29.3
College of Liberal Arts & Social Sciences	13	31.7
C.T. Bauer College of Business	11	26.8
Cullen College of Engineering	2	4.9
College of Education	1	2.4
College of Technology	1	2.4
Gerald D. Hines College of Architecture & Design	1	2.4

Note. Undergraduate college of all Aspire mentors in the Fall 2019, Fall 2021, Spring 2022, Fall 2022, Spring 2023, and Fall 2023 cohorts (*n* = 41).

Appendix F. Characteristics of Study Participants With Available Demographic Data

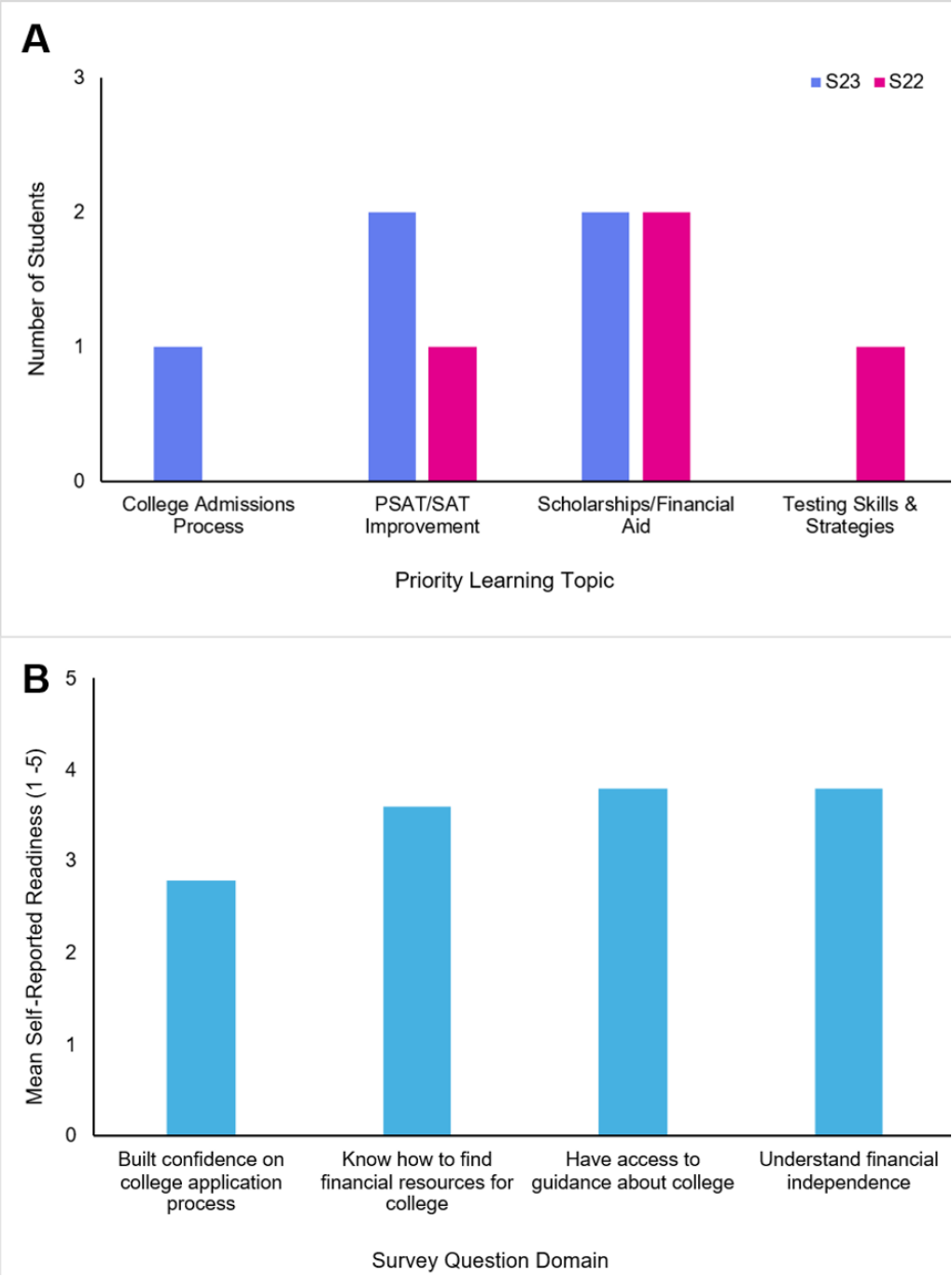
Table F1. Participants' Sex, Income Status, First-Generation Status, and Ethnicity

Student	Cohort	Sex	LI	FG	Ethnicity
Student 46	F21	Female	Yes	Yes	Hispanic or Latino
Student 50	F21	Male	Yes	Yes	Hispanic or Latino
Student 52	F21	Female	No	No	Black or African American
Student 56	F21	Female	Yes	No	Hispanic or Latino
Student 57	F21	Female	Yes	Yes	Hispanic or Latino
Student 60	F21	Female	Yes	No	Other/Prefer not to answer
Student 61	F21	Female	Yes	Yes	Black or African American
Student 62	F21	Male	Yes	No	Hispanic or Latino
Student 64	F21	Male	Yes	Yes	Hispanic or Latino
Student 65	S22	Female	Yes	Yes	Black or African American
Student 66	F22	Male	Yes	Yes	Hispanic or Latino
Student 70	F22	Male	Yes	No	White
Student 71	F22	Female	Yes	No	Black or African American
Student 75	S23	Female	Yes	Yes	Hispanic or Latino
Student 76	S23	Female	Yes	Yes	Hispanic or Latino
Student 77	S23	Female	Yes	Yes	Hispanic or Latino
Student 82	S23	Female	Yes	Yes	Hispanic or Latino
Student 83	S23	Female	Yes	Yes	Hispanic or Latino
Student 84	S23	Female	Yes	Yes	Hispanic or Latino
Student 86	F23	Female	Yes	Yes	Hispanic or Latino
Student 87	F23	Male	Yes	Yes	Hispanic or Latino
Student 88	F23	Male	Yes	Yes	Hispanic or Latino
Student 89	F23	Female	Yes	Yes	Hispanic or Latino
Student 90	F23	Female	Yes	Yes	Hispanic or Latino
Student 91	F23	Female	N/A	N/A	N/A
Student 92	F23	Female	N/A	N/A	N/A
Student 93	F23	Female	Yes	Yes	Hispanic or Latino
Student 94	F23	Female	Yes	Unsure	Hispanic or Latino
Student 95	F23	Male	Yes	Yes	Hispanic or Latino
Student 96	F23	Male	Yes	Yes	Hispanic or Latino
Student 97	F23	Female	Yes	Yes	Hispanic or Latino
Student 98	F23	Female	N/A	N/A	N/A
Student 101	F23	Female	Yes	Yes	Hispanic or Latino

Note. LI = low-income, FG = first-generation. For all study participants who reported their sex ($n = 33$), the majority of students were female (72.7%, $n = 24$) versus male (27.3%, $n = 9$). For students who provided information on whether they qualified for free/reduced lunch or other public assistance ($n = 30$), the vast majority were defined as low-income (96.7%, $n = 29$) versus not low-income (3.3%, $n = 1$). For students who reported the highest education level attained by their parents ($n = 29$), most students identified as first-generation (76.7%, $n = 23$) versus non-first-generation (20.7%, $n = 6$). For students who provided ethnicity data ($n = 29$), most identified as Hispanic or Latino (82.8%, $n = 24$), followed by students who identified as Black or African American (13.8%, $n = 4$), equating to a 96.6% proportion of Aspire students who identified as underrepresented minorities.

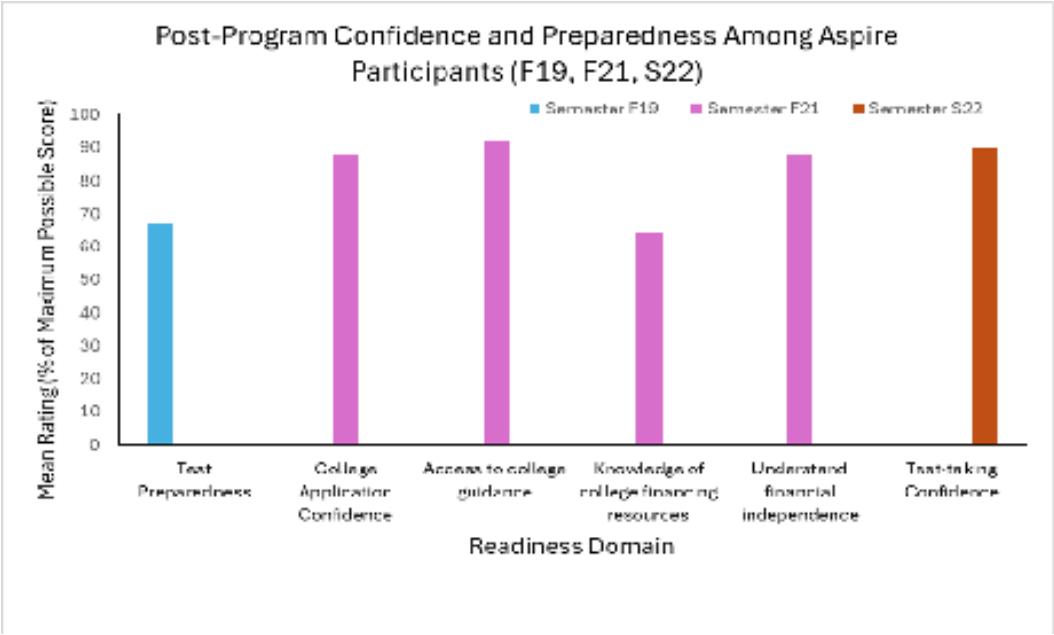
Appendix G. Student Readiness and Program Experiences Based on Survey Responses

Figure G1. Preprogram Readiness and Learning Priorities Among Aspire Participants



Note. Figure G1A (top) graphs preprogram college and financial readiness among Fall 2021 Aspire participants ($n = 5$). Mean self-reported readiness ratings (1–5 on Likert scale) are shown for domains related to college application confidence, knowledge of college financing resources, access to college guidance, and understanding of financial independence. Figure G1B (bottom) graphs preprogram learning goals reported by Aspire participants in Spring 2022 ($n = 4$) and Fall 2023 ($n = 6$). Bars represent the number of students identifying a given topic as a primary learning goal upon program entry, based on mentee registration forms or beginning-of-program surveys. Priority topics reflect descriptive categorization of open-ended responses and illustrate areas of greatest perceived need prior to Aspire participation. Collectively, Figure G1 indicates that students entered Aspire with uneven baseline readiness and clear informational needs—particularly related to college financing, standardized test performance, and navigating the college admissions process.

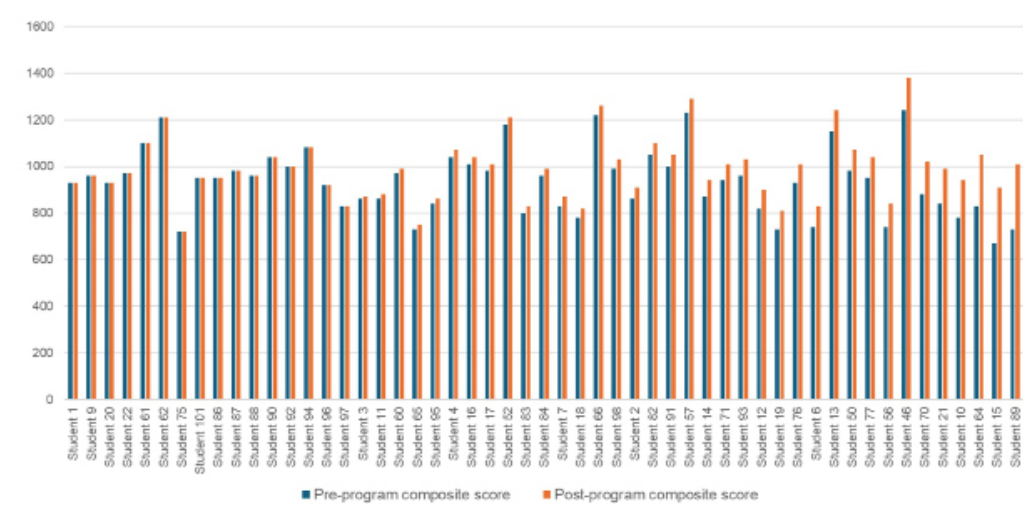
Figure G2. Postprogram Confidence and Preparedness Among Aspire Participants in Fall 2019, Fall 2021, and Spring 2022 Cohorts



Note. Mean postprogram ratings are shown for readiness domains measured in end-of-program surveys, including test preparedness or test-taking confidence, college application confidence, knowledge of college financing resources, and understanding financial independence. To facilitate comparison across the Fall 2019 ($n = 7$), Fall 2021 ($n = 5$), and Spring 2022 ($n = 4$) cohorts using different Likert-scale ranges, mean values are expressed as a percentage of the maximum possible score for each item. Readiness domains vary by cohort based on survey instruments administered. Across the cohorts, students reported high postprogram confidence and preparedness in domains aligned with Aspire’s standardized testing and college-readiness objectives.

Appendix H. Individual Student Statistics

Figure H1. Individual Composite Score Change



Note. Side-by-side comparison of all study participants' composite scores for preintervention SAT exam and their postintervention SAT, listed by least to greatest score change from left to right ($n = 53$).

Table H1. Individual SAT Score and Attendance Data

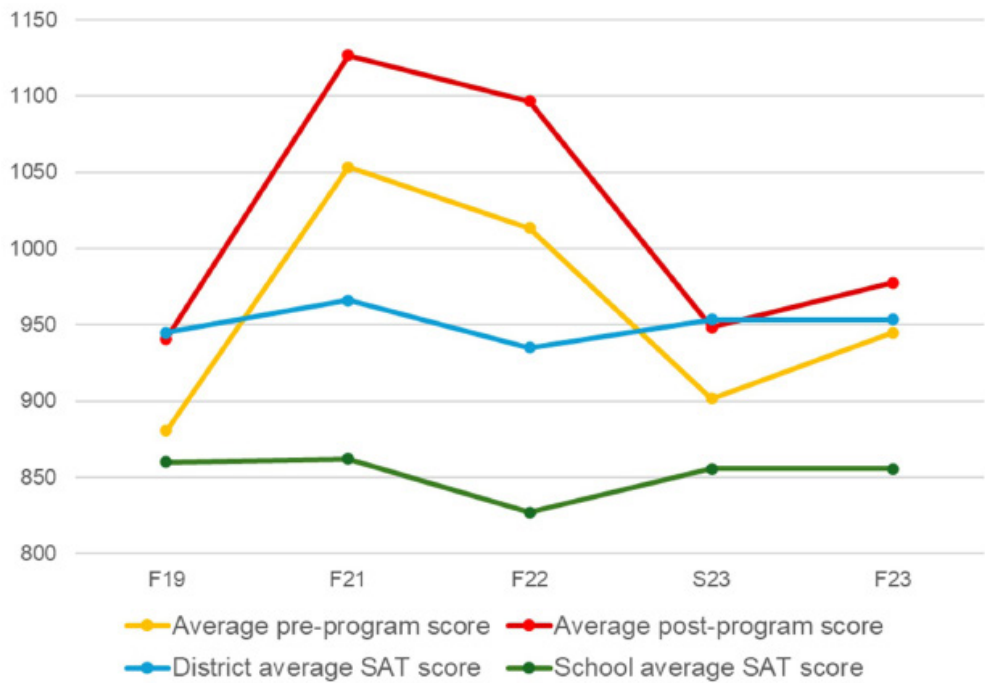
Student	Cohort	Pre-PS	Post-PS	Score change (Pts)	Score change (%)	Sessions attended
Student 1	F19	930	930	0	0.00	3
Student 2	F19	860	910	50	5.81	3
Student 3	F19	860	870	10	1.16	3
Student 4	F19	1,040	1,070	30	2.88	6
Student 6	F19	740	830	90	12.16	3
Student 7	F19	830	870	40	4.82	1
Student 9	F19	960	960	0	0.00	2
Student 10	F19	780	940	160	20.51	5
Student 11	F19	860	880	20	2.33	6
Student 12	F19	820	900	80	9.76	5
Student 13	F19	1,150	1,240	90	7.83	2
Student 14	F19	870	940	70	8.05	6
Student 15	F19	670	910	240	35.82	6
Student 16	F19	1,010	1,040	30	2.97	3
Student 17	F19	980	1,010	30	3.06	6
Student 18	F19	780	820	40	5.13	7
Student 19	F19	730	810	80	10.96	6
Student 20	F19	930	930	0	0.00	2
Student 21	F19	840	990	150	17.86	2
Student 22	F19	970	970	0	0.00	5

Student	Cohort	Pre-PS	Post-PS	Score change (Pts)	Score change (%)	Sessions attended
Student 46	F21	1,240	1,380	140	11.29	2
Student 50	F21	980	1070	90	9.18	2
Student 52	F21	1,180	1,210	30	2.54	2
Student 56	F21	740	840	100	13.51	2
Student 57	F21	1230	1290	60	4.88	7
Student 60	F21	970	990	20	2.06	1
Student 61	F21	1,100	1,100	0	0.00	1
Student 62	F21	1,210	1,210	0	0.00	7
Student 64	F21	830	1,050	220	26.51	2
Student 65	S22	730	750	20	2.74	3
Student 66	F22	1,220	1,260	40	3.28	11
Student 70	F22	880	1,020	140	15.91	1
Student 71	F22	940	1,010	70	7.45	5
Student 75	S23	720	720	0	0.00	4
Student 76	S23	930	1,010	80	8.60	2
Student 77	S23	950	1,040	90	9.47	1
Student 82	S23	1,050	1,100	50	4.76	1
Student 83	S23	800	830	30	3.75	2
Student 84	S23	960	990	30	3.13	1
Student 86	F23	950	950	0	0.00	2
Student 87	F23	980	980	0	0.00	4
Student 88	F23	960	960	0	0.00	2
Student 89	F23	730	1,010	280	38.36	4
Student 90	F23	1,040	1,040	0	0.00	1
Student 91	F23	1,000	1,050	50	5.00	1
Student 92	F23	1,000	1,000	0	0.00	1
Student 93	F23	960	1,030	70	7.29	2
Student 94	F23	1,080	1,080	0	0.00	2
Student 95	F23	840	860	20	2.38	3
Student 96	F23	920	920	0	0.00	1
Student 97	F23	830	830	0	0.00	5
Student 98	F23	990	1,030	40	4.04	1
Student 101	F23	950	950	0	0.00	5

Note. Columns represent study participants' composite scores for their preintervention SAT exam and their postintervention exam, the cohort they participated in, their score change in points, their percent score change, and the number of SAT-relevant Aspire sessions they attended prior to their postintervention exam date ($n = 53$). Pre-PS = preprogram score, Post-PS = postprogram score, Pts = points.

Appendix I. SAT Scores by Cohort and School/District Averages

Figure I1. Line Graph of Average Pre- and Postprogram SAT Scores by Cohort and Comparison With School and District Averages



Note. Line graph comparing study participants’ average SAT scores pre- and postprogram (by cohort), the average districtwide SAT score for their graduating class, and the average schoolwide SAT score for their graduating class. The Spring 2022 cohort was excluded due to having only one student who fit all inclusion criteria. F19 = Fall 2019, F21 = Fall 2021, F22 = Fall 2022, S23 = Spring 2023, F23 = Fall 2023.

Table I1. Average Pre- and Postprogram SAT Scores by Cohort and Comparison With School and District Averages

Cohort	Average pre-PS	Average post-PS	District average SAT score	School average SAT score
Fall 2019	881	941	945	860
Fall 2021	1,053	1,127	966	862
Fall 2022	1,013	1,097	935	827
Spring 2023	902	948	953.5 ^a	855.67 ^a
Fall 2023	945	978	953.5 ^a	855.67 ^a

Note. Table comparing study participants’ average SAT scores pre- and postprogram (by cohort), the average districtwide SAT score for their graduating class, and the average schoolwide SAT score for their graduating class. The Spring 2022 cohort was excluded due to having only one student who fit all inclusion criteria. Pre-PS = preprogram score, Post-PS = postprogram score.

^aThe average school and district composite SAT scores for the class of 2024 (Spring 2023 and Fall 2023 students) were calculated by averaging the school and district mean SAT scores for prior graduating classes (classes of 2018–2023). Official score reports for the class of 2024 have yet to be released.

Table I2. District and Campus Average SAT Scores by Graduating Class

Graduating class	District average SAT score	School average SAT score
Class of 2018	961	876
Class of 2019	954	860
Class of 2020	945	860
Class of 2021	960	849
Class of 2022	966	862
Class of 2023	935	827

Note. Data pulled from official educational program reports (Houston Independent School District, 2018, 2019, 2020, 2022, 2023; Hui et al., 2024).

Beyond Shifting Language in Community Engagement and the Social Services Sector: Reflections and Recommendations

Maria Mayan and Samantha Smith

Abstract

Community-engaged researchers and social service practitioners increasingly adopt nonstigmatizing language to foster respectful and inclusive relationships with communities. However, little attention has been paid to whether decisions about preferred terminology reflect principles of community engagement, particularly the meaningful involvement of people with lived experience (PWLE) in determining how they are represented. Using homelessness as an illustrative example, this conceptual article argues that debates over nonstigmatizing language are also questions of community engagement because they reflect whose knowledge is valued and who has authority to define social realities. Although shifting language can reduce stigma, changing terminology does not necessarily improve the lives of PWLE when it occurs without meaningful engagement with affected communities. We examine nonstigmatizing language through three concepts: the euphemism treadmill, virtue signaling, and the disconnect between shifting language and PWLE preferences. We propose best practices that position language as a relational practice grounded in reciprocity and knowledge coproduction.

Keywords: community engagement, nonstigmatizing language, language use, homelessness, social services



In recent years, academic and non-academic literature has emphasized the importance and guided the use of nonstigmatizing language in community-engaged research and practice, as well as the social services sector (Canham et al., 2022; Healy et al., 2022; National Institutes of Health, 2023; Palmer, 2018; United States Interagency Council on Homelessness [USICH], 2017; Vojak, 2009). Nonstigmatizing language refers to language aimed at reducing the negative bias and power imbalances in how different groups of people are identified (Vojak, 2009). Through language, we transmit messages about identity, agency, and blame. We can humanize “the other” or increase the stigma and chasm between “us” and “them” (Canham et al., 2022; Healy et al., 2022).

Nonstigmatizing language aims to promote inclusivity (Canham et al., 2022). Pinker (1994), however, discussed how guidance on the most appropriate language is ever-changing and, in many instances, terms once seen as respectful are quickly considered outdated and replaced with newer, more appropriate terms. Amid this shifting language, little attention has been paid to the disconnect that may exist between the language used by community-based academics and social sector practitioners compared to that used by people with lived experience (PWLE). We acknowledge that the term “people with lived experience” can inadvertently create a distinction between those whose experiences are recognized as expertise and those positioned as researchers and practitioners. Moreover, the term may not resonate with everyone

whose perspectives it seeks to represent, as people may identify themselves through their specific circumstances, experiences, or social identities rather than through a collective label. An ideal example of this phenomenon is the term “homeless,” often used by PWLE, being replaced by academics and practitioners with “people experiencing homelessness,” or those who are “houseless” or “unhoused” (Abrams, 2023; National Institutes of Health, 2023; Slayton, 2021).

Community engagement offers an important theoretical lens through which to examine issues about language. Although definitions vary, community engagement is generally understood as collaborative processes that bring together researchers, practitioners, organizations, and community members to address issues of mutual concern through reciprocal relationships, shared decision-making, and coproduction of knowledge (Carnegie Foundation, 2006; Sandmann et al., 2008; Weerts & Sandmann, 2008). Rather than positioning researchers and practitioners as experts who generate knowledge for communities, community engagement emphasizes shared authority, mutual learning, and the recognition that communities possess expertise derived from lived experience that is essential for understanding and addressing complex social issues.

From this perspective, decisions about language are not merely questions of respectful communication. They are community engagement practices because they reflect whose knowledge is valued, who has authority to define social realities, and whether PWLE are positioned as partners in knowledge production or as recipients of professional expertise (Israel et al., 1998; Wallerstein et al., 2018). Consequently, discussions about preferred terminology should themselves be understood as opportunities for meaningful community engagement.

We therefore find ourselves navigating a nonstigmatizing language dichotomy. On the one hand, we understand that language undeniably matters and the language we use in community engagement and the social services sector shapes how we understand and respond to issues (Palmer, 2018; Vojak, 2009). On the other, adopting language not used by people experiencing the issue indicates a disconnect in practice (Figueroa, 2023; Tsai et al., 2022). This article explores the complexities of the nonstigmatizing language dichotomy by asking who shifting

language serves and introducing best practices for language use in community engagement and the social services sector. There has been minimal scholarly critique of shifting language in recent years, with most discussions appearing on practitioner-focused, nonacademic platforms.

This article explores the complexities of the nonstigmatizing language dichotomy by asking who shifting language ultimately serves and by examining this question through the lens of community engagement scholarship. Although guidance on nonstigmatizing language has grown substantially, comparatively little attention has been paid to whether decisions about terminology themselves reflect the principles of reciprocal engagement, shared decision-making, and coproduction of knowledge with PWLE. We argue that although shifting language has an important role in reducing stigma, the everyday lives of PWLE do not necessarily benefit when language evolves independently of the communities it seeks to represent.

We first examine the importance of using nonstigmatizing language. Next, we share how shifting language may not serve PWLE by presenting three concepts: the euphemism treadmill, virtue signaling, and lack of meaning of shifting language and engagement with PWLE. Finally, we propose best practices for researchers and practitioners that position language not simply as a communication tool, but as a relational practice grounded in reciprocity, shared authority, and meaningful community engagement.

The Importance of Nonstigmatizing Language

Nonstigmatizing language acknowledges that the terms we use actively work to define, categorize, and essentialize people. In turn, language constructs in dominant narratives (Canham et al., 2022) and public perception commonly shape the development of policies and programs (Goddu et al., 2018; Palmer, 2018). PWLE may internalize negative dominant narratives, which further marginalizes their experiences and erases their autonomy.

Indeed, language is infused with status, and those with power are largely responsible for shaping the language we use (Vojak, 2009). This hegemonic influence is often not identified, and language is commonly misunderstood to convey an objective reality. The field of discourse analysis has risen

in response to the perceived neutrality of language and is focused on uncovering the deeper meaning behind how and why we use the language that we do (Mayan, 2023). Discourse analysis has shown that our language can play an important role in maintaining power imbalances and urges us to consider the context in which concepts are communicated.

Given the weight that our language holds, the use of person-first language (e.g., referring to someone as “a person experiencing homelessness” instead of “a homeless person”) has emerged as one model of nonstigmatizing language (Healy et al., 2022; USICH, 2017). Person-first language is advocated by organizations including the U.S. Centers for Disease Control, the American Psychological Association, and some branches of the Canadian federal government (Government of Canada, 2022; USICH, 2017). For example, the intent of shifting away from using the term “homeless” is that it reduces the stigma associated with not having a place to live and recognizes that people without a house can still have a home. By emphasizing our shared humanity, the goal of person-first language is to reduce negative stereotyping and blaming of individuals and instead focus on the structural issues that create unmet needs and marginalization (Goddu et al., 2018; Healy et al., 2022; USICH, 2017). It is part of a larger movement within community engagement and the social services sector toward person-centered approaches that start with individuals’ strengths within the context of their unmet needs (USICH, 2017).

The preference for person-first and other types of nonstigmatizing language is also advocated as a way to “walk the talk” by using language that better reflects our values and is aligned with the kind of world we wish to live in (Goddu et al., 2018; USICH, 2017). It is related to the concept of critical consciousness, which refers to the transformational ideas and practices needed to disrupt systems of oppression and to challenge power imbalances (Gill, 2013). Gill advocated that critical consciousness is something that can be spread to others, fostering societal transformation through collective action. Vojak (2009) agreed and asserted that language is one tool for spreading critical consciousness, calling on “those aimed at social justice [to] take every opportunity to de-stigmatize and normalize the language” (p. 945). They also made the point

that changing our language is something we can do immediately, making it an accessible way to create change.

How Shifting Language May Not Serve Those Experiencing the Issue

The benefits, however, of shifting language hinge precariously on the assumption that doing so will result in changes in actions and improvement in people’s lives. We argue that a focus on shifting language alone primarily serves those working in community engagement and the social services sector rather than PWLE. Therefore, it is important to discuss the possible immediate implications of shifting language and how it might not be linked to positive outcomes for PWLE. We do so through describing three concepts: the euphemism treadmill, virtue signaling, and the lack of meaning of shifting language and engagement with PWLE.

The Euphemism Treadmill

According to the Merriam-Webster (n.d.) euphemism is “the substitution of an agreeable or inoffensive expression for one that may offend or suggest something unpleasant.” Pinker’s (1994) euphemism treadmill describes how people create new “polite” terms to refer to upsetting or unseemly things to mask our discomfort with difficult issues. Eventually, because these new terms become “tainted by association,” they need to be replaced again (Pinker, 1994, para. 13). Instead of helping to reframe an issue and challenge people’s misconceptions, Pinker argued that the euphemism treadmill shows how simply changing a term does not necessarily change how we view something; otherwise, we would not need to keep updating it.

When it comes to homelessness, Robbins (2022) pointed out that “the word homeless isn’t inherently stigmatized. It’s the entire concept of homelessness that’s stigmatized. All the biases, stereotypes, misunderstandings, and hatred people have for homeless people don’t dissipate the moment they’re called unhoused people” (“So Why Do We Have So Many Words?” section). Furthermore, new terms have been criticized as confusing and awkward on a practical level because, to be inclusive, they are less specific and possibly dismissive (Abrams, 2023; O’Neill, 2011). For example, the shift from describing someone as “handicapped” to “physically challenged” glosses over and diminishes the profound

difference between an individual experiencing physical challenges from time to time and one having a condition that pervades and permeates everyday life (O'Neill, 2011). To this end, Pinker (1994) argued a better gauge for progress toward equality and mutual respect will be when terms for different groups of people remain stable.

Virtue Signaling

Virtue signaling, criticized as performative, may occur when someone is using the “most correct” language or making moral claims in an effort to convey what a good, conscientious person they are (Benn, 2021; Zentz, 2021). Indeed, virtue signaling is a contentious and much debated notion that was described and denounced in 2015 by journalist James Bartholomew (although there is no consensus on whether he invented the term; Benn, 2021). Benn described virtue signaling in the context of the “worst manifestations” of moralism.

When moralism takes the form of hounding people because of something they may have said, the vain moralizer signals his or her “virtue” by joining in the hounding in order to be admired by the others going after the victims. He or she is like children who befriend playground bullies by joining in with the bullying and may be afraid that if they do not, they will be bullied themselves. The moralizer’s actions are different from wanting to be part of a collective action against something that one perceives as bad (Benn, 2021).

To this end, Pinker (1994) pointed out the power at play when using the latest terms often “shows not sensitivity but subscribing to the right magazines or going to the right cocktail parties” (para. 16). Indeed, virtue signaling is elitist and reserved for those who have ongoing access to formal education and the luxury of contemplation. And those who have this luxury often enact what Pinker cautioned against, which is unfairly judging those who use “outdated” language as prejudiced and insensitive. It is argued that the focus on language ignores other important factors, such as the context in which something is said and the tone in which it is delivered (Omerov et al., 2020; O'Neill, 2011). Virtue signaling can then serve as a mechanism for academics and practitioners to feel they are contributing to social change. Robbins (2022) went further by saying that debates on the most current correct term can be a distraction, as

remarking on someone’s language is much easier than doing the hard work of dismantling the structures that are at the root of the issue.

Lack of Meaning of Shifting Language and Engagement With PWLE

The final critique regarding shifting language is that it often lacks momentum and meaning with PWLE. For example, despite newer, more inclusive terms, most people without housing still choose to refer to themselves as homeless (Abrams, 2023; Robbins, 2022), and for some individuals and groups, identity-first language (e.g., homeless or unhoused person) might still be acceptable or even preferred (Healy et al., 2022).

A 2020 survey conducted by Tsai et al. (2022) in the United States found that among adults who had lived without housing and adults who had not, the most used term by both groups was “homeless.” In contrast, the service providers, academics, and policy-makers surveyed were found to prefer the term “people experiencing homelessness” (Tsai et al., 2022, p. 417). Figueroa (2023), who has personally experienced homelessness, examined this disconnect and argued that “instead of creating new language, perhaps we should direct our efforts toward connecting with homeless people” (para. 8). In a review of 22 studies of people experiencing homelessness and their experiences with health and social care, Omerov et al. (2020) found that professional encounters described as positive and helpful included those when practitioners took the time to listen, remembered details about their lives, and, as a result, catered resources to their individual needs.

In contrast, in the context of homelessness, some authors have pointed out that those who might be most vocal in debates over language have yet to engage with PWLE and are not personally affected by the issue (Robbins, 2022). Green (2021) shared her experience of being labeled as having “complex needs” (p. 209) when she was experiencing homelessness. Although “complex needs” is considered by many practitioners to be the most current and thus appropriate language, Green said she internalized this label and it limited her sense of agency. And regardless of what terms are used, they all essentially make the same error of focusing on the individual’s, rather than the system’s, shortcomings. As argued by Figueroa

(2023), developing effective, empathetic, and sustainable change for homelessness, as well as many other social justice issues, rests on connecting with, building relationships with, and creating spaces for PWLE to lead the conversation.

Summary

Understanding the power of language and how it can be manipulated to construct and exclude PWLE is critical in community engagement and in the social services sector. Shifting to nonstigmatizing language allows those working in the field to feel good, knowledgeable, and conscientious, demonstrating their awareness of the latest in language use. It is also gratifying because changing one's language can happen immediately. These benefits are notable, for working in community engagement and the social services sector is demanding work and progress can feel elusive. However, understanding the mechanisms that also underlie shifting language—euphemisms, virtue signaling, and disassociation from PWLE—demonstrates how it can dangerously mask inaction, be elitist, and further distance the realities of PWLE, academics, and practitioners. If our obsession becomes shifting language alone, it results in primarily serving those working in community engagement and the social services sector, and PWLE only secondarily. Nonstigmatizing language then becomes more of a façade, cloaking inaction on a multifaceted issue that requires addressing the root causes of unmet basic human needs. To address the lure of relying on nonstigmatizing language, we now consider best practices for navigating shifting language.

Best Practices When Navigating Shifting Language

Several key practices can guide both academics and practitioners to navigate shifting language. First, a best practice is to focus more on the content of what someone is saying and less on the language they use. Those working in community engagement and the social services sector are often mesmerized by language and triggered by hearing someone use a term considered outdated or stigmatizing, and consequently, judge and label this person as prejudiced (Benn, 2021). By scrutinizing their outdated language or ignoring their comments, we misdirect attention to the wrong thing, which takes away from addressing the issue

itself (Robbins, 2022). Indeed, someone who is using the “correct” language may still be saying harmful things. In the context of homelessness, it does not matter if someone is referring to people as “unhoused” if they are expressing opinions that continue to attribute homelessness to individual failures.

In addition, academics and practitioners can reframe issues beyond language. As discussed, focusing on shifting language may distract from the real issues requiring structural change. Instead of monitoring individuals' language, focus on having a conversation when they make statements that dehumanize individuals or reinforce stereotypes. Another way to reframe an issue is to adopt a power lens by analyzing the role power plays in maintaining inequalities and then identifying how to shift unequal power relations (Heller et al., 2023). Nichols et al. (2018) have written about practical ways to reframe how we communicate about homelessness from an issue that requires charity to one that requires collective action. This shift involves appealing to people's sense of shared commonality, understanding the diversity of peoples' experiences of homelessness, and recognizing the role of systems as both a cause and a solution. Nichols et al. understood that our discourse around issues like homelessness matters; however, public perception is shaped by more than language. Mobilizing the public to act requires a range of techniques beyond a mere change in language.

Finally, consistent with community engagement scholarship, language decisions should emerge through collaborative processes with PWLE rather than being determined solely by researchers or practitioners. Cocreating terminology reflects the principles of reciprocity, shared authority, and mutual learning that distinguish authentic community engagement from consultation (Castleden et al., 2012; Israel et al., 1998; Wallerstein et al., 2018). Centering the voices of PWLE is widely encouraged in community engagement and the social services sector, yet when it comes to decisions about language, it seems these voices are often overlooked (Robbins, 2022). Israel et al. (2008) spoke to this issue directly, pointing out how “socially and economically marginalized communities often have not had the power to name or define their own experience” (p. 50).

Literature about best practices for engaging with PWLE is available (Canadian Centre on

Substance Use and Addiction, 2021; Homer, 2019; Lived Experience Advisory Council, 2016). However, PWLE are not a homogeneous group and may hold different perspectives on how their experiences should be labeled. Prioritizing community engagement and space for PWLE to lead these discussions is key (Figueroa, 2023). In this manner, researchers and practitioners can strive to achieve “ethical validity” (Edwards et al., 2008, p. 17) by achieving greater consistency with the ethical principles of all partners around the table, which is expected to lead to more respectful relationships and generation of ideas. Engaging with communities requires time, as well as researchers’ and practitioners’ commitment to mutual trust, respect, and colearning (Castleden et al., 2012). Nevertheless, we argue that it is an invaluable step in learning PWLE’s preferred language choice, and, as a result, ensuring that preferred language is indeed reflected in your work.

Conclusion

More broadly, this article suggests that community engagement scholars should view language choices as relational practices rather than technical decisions. When communities participate in determining how they wish to be represented, language becomes one expression of shared governance and knowledge coproduction. Conversely, when terminology is developed primarily within academic or professional circles, even with good intentions, it risks reinforcing the very power imbalances that community engagement seeks to address.

Shifting language is used across community engagement and the social services sector, with language concerning homelessness being a prime example. There is no doubt that language can influence public perception and policy, and individuals who advocate for updated terms identify using them as a way for people to “walk the talk.” However, shifting language alone is insufficient to benefit PWLE and can mask inaction. Indeed, shifting language may primarily serve those working in the field through the euphemism treadmill, virtue signaling, and lacking engagement and support from PWLE. Although shifting language is not a new phenomenon, it is important to reflect upon it as a form of privilege that excludes those unable to keep up to date with the “most correct” language, a practice that often serves to distract from real, urgent, and needed structural change.

To navigate shifting language, we can invest time in community engagement, focus on the content of what people are saying, and reframe how we communicate about issues beyond language, so that PWLE remain rightfully at the center of practice, research, and decision making. In this spirit, the best practices recommended here call for further review and input by PWLE. As authors who have professional but not personal experience with the issues being discussed, we recognize that our role in this conversation, along with others working in the field, is to listen and respect the opinions of those who do.



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Community Partner Perspectives on Cocreating Strong Relationships With Universities

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Abstract

University researchers have defined characteristics of “successful” university–community partnerships. However, few frameworks center community partner perspectives, or examine the relationship between university and community partners as the point of analysis. We, team members from a community–based organization (CBO) and a university, ask: What conditions cocreate strong relationships? We distill literature–derived principles that contribute to strong partnerships, then use these principles to inform guided discussions among our partnership group. Our CBO coauthors highlighted three priorities from the literature as critical to strong relationships: aligning values, building trust, and honoring capacity. Further, CBO coauthors identified embodying reciprocity and acknowledging positionality as core, standalone principles. We discuss how centering these priorities can strengthen broader institutional relationships between CBO partners and universities.

Keywords: community perspectives, community–university partnerships, academic and community partnership, community engagement in higher education, community–institutional relationships



Long-term and persisting friction between community needs and academic incentives for research creates challenging partnership contexts. Indeed, community members, especially from historically minoritized communities, have reported a “legacy of negative experiences with university–based research,” often describing these partnerships as “irrelevant, burdensome, extractive, and even exploitative” (London et al., 2018, p. 175). The harm is that research conducted *about* communities without meaningful engagement *with* communities misrepresents and renders invisible the most important perspectives in the research process (Littman et al., 2021; Wallerstein et al., 2019). Under these circumstances, community members are rightfully wary of “partnerships” when participation in the “generation of knowledge” does not serve their community. Indeed, poor relationships can result in harm for communities (Strier, 2014).

With awareness of these challenges and tensions, scholars have put forth frameworks to guide the priorities and outcomes of university–community partnerships (Fitzgerald et al., 2010; Isler & Corbie-Smith, 2012; Lavery et al., 2010). The majority of these frameworks center the perspective of university partners and prioritize “outcomes” of engaged work (i.e., generating results more relevant to community members) as the marker of a successful partnership (Pasick et al., 2010). We seek to deepen understanding of the conditions that facilitate strong relationships between university and community–based organization (CBO) actors, especially from the perspective of CBO partners.

Here, we situate our work within scholarship that does center community partner perspectives on these collaborations (Chinekezi et al., 2023; Leiderman et al., 2002; Méndez et al., 2017; Oster & Lightning, 2022; Park et al., 2026; Pillard

Reynolds, 2014; Sandy & Holland, 2006; Williamson et al., 2020). Although these studies each center the perspectives of community partners, they generally do so by asking community partners to describe and reflect on their experiences collaborating with the university. Williamson et al. (2020) explored community partner perspectives within community-based participatory research (CBPR). One of their central findings was that the practices identified by their community partners largely aligned with the core principles articulated in university-defined CBPR literature. Pillard Reynolds (2014) offered an important contribution to what constitutes an “outcome” of an international service-learning collaboration, specifically asking how community partners perceived outcomes of these partnerships. She found that community partner perspectives extend beyond the “tangible” outcomes (e.g., improved access to clean water) often emphasized by university partners. Leiderman et al. (2002), in collaboration with 21 leaders from community organizations engaged in university partnerships, investigated the practices that facilitate university–community collaborations and “the rules and norms that influence the nature of community/campus collaboration” (p. 4).

Collectively, this body of scholarship demonstrates an ongoing effort to center community partner perspectives in disentangling university–community engagement dynamics. We situate our contribution within this work, introducing a different approach to collaborative knowledge production. Although our findings greatly affirm those of these studies, we add to these insights by using a novel approach in which the nature of community partners’ engagement process differs significantly. Rather than asking community partners only to describe or evaluate their partnership experiences, we use a synthesis of existing community partner priorities as the foundation for generative discussion and cocreation. Rather than post hoc analysis in which the research team contrasts the community partner perspectives with existing academic frameworks, in this article community partners themselves analyze partner-derived frameworks, collaboratively interpreting, refining, and expanding them. This dialogic approach positions our coauthors as collaborators in refining partnership theory, moving beyond validating existing principles and

toward the codevelopment of a nuanced understanding of relational practices that sustain collaboration.

A common metric in assessing the quality of a partnership is the extent to which it is perceived by partners as “short-term transactional” versus “long-term transformational” (Sandy & Holland, 2006). Whereas transactional relationships include short-term exchanges that result in net positive outcomes, where benefits exceed costs, transformational relationships include benefits and opportunities for growth, like questioning established norms, taking on complex roles, and potentially being changed by the relationship (Kniffin et al., 2020). Levkoe et al. (2016) argued that either partnership orientation can achieve transformative change if the partnership is reciprocal, including that partners are able to be reflexive about their processes, engage in ongoing communication, and remain flexible. We align with this view of partnerships and embrace the focus on reciprocity and relationality.

To that end, our project aimed to distill principles that help to foster strong relationships between university and community partners by drawing on both literature and reflexive conversations about these principles within our own university–community partnership. Our team includes CBO staff from the Community Action Board of Santa Cruz County, Inc. (CAB) and graduate students, postdocs, and faculty associated with the Center for Reimagining Leadership (CRL) at the University of California, Santa Cruz (UCSC). CAB is a designated Community Action Agency whose mission is to partner with the community to eliminate poverty. CAB serves over 10,000 diverse low-income individuals annually, including Spanish-speaking and Indigenous-language-speaking communities. CRL is a UCSC center that aims to amplify the research excellence of historically underrepresented scholars, including by building opportunities for meaningful partnerships with community organizations.

In coanalyzing literature-informed principles as a partnership team, we were able to surface nuances in how these priorities are understood and enacted, exploring what these abstract principles look like when situated within specific community contexts, and which concrete practices and relational processes bring them to life. CAB’s unique expertise, drawing from decades of

knowledge navigating partnerships across institutions, governments, and community organizations, illuminates critical gaps in the academic literature about what it means to center relationships from a community partner perspective. We discuss how our findings can be applied to deepen relationships through everyday partnership interactions and the implications of these priorities for institutional practice.

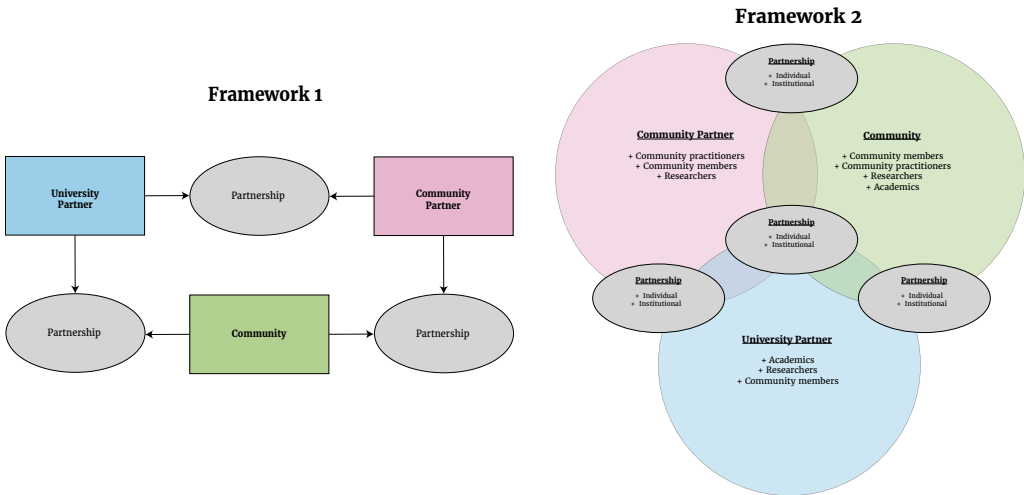
What Are University–Community Partnerships?

There are diverse types of university–community partnerships (see Appendix A). Much of the traditional literature about university–community partnerships casts the “university partner” and “community partner” as two siloed roles coming together for a project, then returning to their separate camps—a framing noted and critiqued by scholars (DiEnno et al., 2024; Fransman et al., 2021). Within the siloed framework, and as illustrated in Figure 1, Framework 1, the university partner comprises “academics” and “researchers,” whereas the community partner includes “community practitioners,” who serve a third group, the “community.” The community can be understood as “groups of people who are affiliated by geographic proximity, special interests, or similar situations with respect to issues affecting their wellbeing” (Center for Disease Control and Prevention, 1997, p. 9). Some literature treats “community partner” as

synonymous with “community,” assuming that their interests always align or that the “community” represents a unified monolith. These rigid boundaries minimize the mutual and diverse affiliations and roles that any given member might hold within a partnership (e.g., community members might identify as researchers).

More recent scholarship, where we situate our own perspective, adopts a more fluid model and explores overlapping identities, relationality, and power-sharing (DiEnno et al., 2024; Fransman et al., 2021; Weerts & Sandmann, 2010). We build on Strier (2014), who argued that the “interrelatedness of collaboration and conflict” are “formative and generative aspects” of partnership. We consider that the challenges (and opportunities for transformative justice) associated with university–community partnerships stem from the intersections of identities, priorities, and lived experiences spanning universities, community partners, and communities. As put forward in Figure 1, Framework 2, we understand partnerships as consisting of overlapping and shifting roles and responsibilities among diverse partners that can span individual and institutional scales (see also Bringle & Hatcher, 2002; Soska & Butterfield, 2004; Weerts & Sandmann, 2010). These overlaps and shifts occur as a result of the dynamic nature of these relationships, thus our focus on relational features and conditions that support growing partnerships.

Figure 1. Axes of Partnerships



Note. Framework 1 illustrates partnership occurring as a collaboration between siloed entities of (1) university and community, (2) community partner and community, or (3) university partner, community partner, and community. Framework 2 demonstrates partnership occurring at the intersections of communities, community partners, and university partners, members of whom may identify with any other group.

**Distilling Partnership Principles
From the Literature: Community
Partner Perspectives on University-
CBO Partnerships**

To understand existing best practices for building strong relationships in community-university partnerships, the UCSC coauthors first reviewed the relevant literature. We used Google Scholar and Google web search, using search terms identified in Figure 2. These terms were generated from different types of university-CBO partnerships (see Appendix A). We included literature published in peer-reviewed journals and public-facing outlets (e.g., university collaboration guidelines on the websites of community partner organizations) to include broader perspectives. During the review process, we identified recurring priorities that contribute to strong partnerships. When we reached the point where no additional sources were introducing new partnership priorities, we considered this theoretical saturation (Saunders et al., 2018). This process resulted in an examination of 50 papers or websites as the foundation of our analysis.

We further narrowed our scope of analysis based on five selection criteria. First, our inclusion criteria required that materials be authored by community partners or focus on the perspectives of community partners (e.g., through interviews). Second, because our aim is to build on existing frameworks and think systematically about how partnerships can be enhanced, we included sources that detailed specific frameworks or

lessons learned. Third, we included sources published 2004–2024 to reflect a shift in the literature toward partner perspectives in the last two decades. Fourth, as we approached saturation, new items were included only if they contributed new ideas or novel practices to our set of priorities. This procedure allowed us to include fields as diverse as health equity (CBPR; $n = 4$), service-learning (multidisciplinary; $n = 3$), environmental justice (EJ; $n = 3$; one agroecology, one sustainable food systems, and one EJ in general), social work (PAR; $n = 1$), and justice-oriented community-engaged research (broadly; $n = 1$). This process yielded 11 papers and one CBO website for a total of 12 sources.

We then coded these 12 sources, to better understand what community partners prioritize as the important metrics of university-community partnerships. We started with inductive coding, constructing an initial list of codes related to partnership priorities (Charmaz, 2008). We then compared these codes against all 12 sources, marking the presence of identified codes within the other sources. From this process, we identified eight priorities, each present in at least four frameworks, that community partners identified as core components of partnership: (1) building trust, (2) aligning values, (3) clarifying expectations, (4) honoring capacity, (5) sustaining the partnership financially, (6) focusing community leadership, (7) committing to social change, and (8) centering community-based knowledge. Table 1 summarizes these community-driven principles; we define each and provide examples from the 12 sources to illustrate their meanings.

Figure 2. Search Terms

The primary search terms included

[“university” OR “academic”] AND [“community partnerships” OR “community engagement”]

OR

[“participatory action research”] OR [“service-learning”] OR [“community engaged research”]

AND

[“best practices” OR “framework” OR “recommendations” OR “principles” OR “guidelines” OR “lessons learned” OR “community perspectives”]

Reviewing the University–Community Partnership Principles With CAB

We then expanded upon the distilled principles through guided discussions (described below) between CAB and CRL partners. The evolving relationship, which we detail next, shaped our methodological approach and interpretative method.

Partnership Between CAB and CRL

This article was inspired by CRL’s efforts to support our early-career faculty fellows, most of whom are scholars of color, in

building community partnerships. A precondition for strong engagement involving diverse scholars is a sustained effort to transform the current university culture by advocating for the creation of a culturally fluent community of scholars that reflects the values of the local sphere we inhabit. CRL creates programs that work toward this goal by building communities where minoritized scholars belong and thrive.

CAB is uniquely positioned to inform this inquiry with a long history of partnerships created to serve their community members through advocacy, essential services, and other resources. Building on this history,

Table 1. Literature-Derived Priorities for University–Community Partnerships

Priority	Identifying the code	Examples from the literature
1. Aligning values	We identified instances of “aligning values” as the degree to which collaborator values, priorities, and goals are compatible.	- Grounding goals and methodologies in questions most important to the community involved, ensuring “goodness of fit” (Darling et al., 2015) and the creation of meaningful results (Williamson et al., 2020) - Moving away from prioritizing academic outputs or isolated programs and, rather, prioritizing long-term partnerships that reflect community priorities (Sandy & Holland, 2006)
2. Building trust	We identified instances related to “building trust” as referring to participants’ expressions of comfort, shared values, accountability, reliability, and degree of confidence (or lack thereof) in other people, projects, and institutions.	- Nurturing the relationship on which the partnership is founded (Sandy & Holland, 2006) - Seeing the relationship as not time- or product-bound, valuing the partnership beyond a specific project (Chinekezi et al., 2023; Oster & Lightning, 2022; Sandy & Holland, 2006) - Demonstrating accountability by following up words with action (Méndez et al., 2017)
3. Clarifying expectations	We identified themes of “clarifying expectations” as instances related to the importance of defining expectations, roles, and responsibilities.	- Clearly communicating partnership expectations before a project begins, with ongoing communication about whether expectations are being met (Levkoe et al., 2016; Rinaldo et al., 2022) - Defining roles and responsibilities, often through tools like a Memorandum of Agreement outlining principles of collaboration, mechanisms of accountability, logistics such as project timelines, and compensation (Little Village Environmental Justice Organization, 2024) - Both communicating and understanding when flexibility is needed (Sandy & Holland, 2006)
4. Honoring capacity	We identified “honoring capacity” as instances regarding setting collaboration boundaries, respecting capacity, and discussing limitations.	- Transparency about and respect for the unique strengths and capacities of each partner (Williamson et al., 2020), as well as limitations, biases, goals, funding, and desired outcomes for the collaboration (Chinekezi et al., 2023) - Respecting community partner operations as the priority over new research or project demands (Darling et al., 2015)

Priority	Identifying the code	Examples from the literature
5. Sustaining the partnership financially	We identified themes of “sustaining the partnership financially” from mentions of financial compensation at the individual level for collaborative work accomplished, and the necessity for funding at the project or institutional level to sustain the projects and organizations involved.	• Considering familiarity with a community as a position of expertise that should be recognized with financial compensation (Darling et al., 2015) • Being transparent about project fundraising and being open to connecting partnership organizations to additional funding opportunities (Little Village Environmental Justice Organization, 2024)
6. Focusing community leadership	We identified themes of “focusing community leadership” from instances prioritizing community participation and influence over the project process and outcomes of collaboration.	• Initiating and designing projects through collaborative processes, where all partners contribute to as many phases as possible, coplanning and training, designing research questions, conducting methods, and engaging in coproduced, actionable solutions (Little Village Environmental Justice Organization, 2024; Méndez et al., 2017; Sandy & Holland, 2006) • Seeking community-led ownership of project outcomes, including intellectual property rights and control over research findings (Oster & Lightning, 2022)
7. Committing to social change	We identified “committing to social change” as instances discussing a desire for a larger, long-term, justice-oriented impact that extends beyond one project or organization.	• Community partners are motivated by collaborations that exhibit a “belief in collective power” (Méndez et al., 2017) and “a true and honest desire to help” (Williamson et al., 2020) • In the service-learning context, Worrall (2007) found CBOs often engage in partnerships with the expectation that student service learners will use their experiences to challenge injustice and contribute to broader systemic change in the future; their perspective reflects a long-term commitment to creating change through their belief in the impact of educating future decision-makers
8. Centering community-based knowledge	We identified the priority of “centering community-based knowledge” through instances discussing how knowledge is created and whose knowledge is valued.	• Demonstrating respect for and valuing all forms of knowledge involves prioritizing knowledge from lived experience (Littman et al., 2021), listening to those closest to injustice (Chinekezi et al., 2023), making space to explore multiple worldviews and ways of knowing (Oster & Lightning, 2022), and amplifying traditionally marginalized perspectives (Méndez et al., 2017) • Centering community-based knowledge acknowledges historical epistemic power dynamics and recognizes community-based knowledge as extremely rigorous (Levkoe et al., 2016)

CAB’s expertise was critical to this research.

CRL and CAB have been building a relationship for approximately two years. Formalized elements began with an invitation to CAB’s executive director and co-author MariaElena De La Garza to speak at a CRL event at UCSC, and have evolved to include various collaborations, including a joint position (coauthor Sidney Madsen is a UCSC postdoc and CAB staff member), CAB connecting a CRL fellow with important

community leaders for a K–12 science outreach project, and, most recently, a collaboration on a project to train community leaders in climate justice organizing and outreach. The informal elements have been equally important, as the partnership has been driven centrally by relationship building, not outputs. Informal activities have included sharing meals, stargazing at the Lick Observatory, and attending a party to celebrate the 60th birthdays of both CAB and CAB executive director and coauthor

MariaElena De La Garza.

Our process was facilitated by this foundation of informal, but intentional, relationship-building before considering research. We ultimately pursued this project in response to stories of partnership mistakes, with a view toward ensuring we did not repeat past mistakes in our efforts to further build our partnership, and in hopes of supporting future researchers interested in fostering relationships with CBOs. CRL secured IRB approval for this project. Though IRB processes introduce a level of formality into the relationship, they also help us to reflect on our shared responsibilities for the project, prioritizing how to reduce risk of harm to CBO partners.

We recognize that it is difficult to engage in a partnership without a defined outcome and focus on shared values as the starting point for a relationship within the current incentive structures set up in the university, which typically reward outputs over processes. Yet, drawing on the work of adrienne maree brown (2017), CAB and CRL believe that when we begin to practice new ways of being in relation to one another, “what we practice at the small scale sets the patterns for the whole system,” catalyzing systemic change (p. 57). Our collaboration is thus uniquely suited to expand on existing partnership models because both partners are committed to learning about and practicing these approaches together, with a view toward long-term systemic change. Given this motive, we wanted to better understand if/how centering relationships, rather than predefined outputs, could contribute to stronger long-term partnerships with CBOs for universities.

Our Approach: Guided Discussions

The UCSC coauthors designed two guided discussions with our CBO coauthors to explore and expand upon the literature-informed set of principles outlined in Table 1. We took an informal, conversational approach, akin to the focus on “everyday talk,” mutual sharing, and ongoing reflexivity commonly found in talking methodologies (e.g., see everyday talk; Kohl & McCutcheon, 2015). We intentionally centered relational elements, such as being in community over a meal and choosing locations that were meaningful (i.e., through celebrating family/elders or by traveling to locations that signaled gratitude for CBO time spent on the project). Both meetings were semistruc-

tured in that questions were preidentified by the UCSC team, but we honored organic conversation shifts and followed the lead of CBO partners when they invited alternative discussion topics.

We adopted a practice of shared facilitation, ensuring participation and codirection from all members. For example, a CBO partner redirected a prompted question to the university partners in the room, reframing roles in the research space. In other moments, more experienced partners paused to invite newer voices, asking, “What are your thoughts?” Although all participants contributed to the discussions, our results focus on CAB perspectives, in line with our goal to center community partner perspectives.

The first guided discussion took place in September 2024 over lunch at a restaurant near the CAB offices in Watsonville, California, which was long owned by the family of a CAB coauthor. The conversation focused on the topic of collaborations. The second guided conversation took place 4 months later (in January 2025) at the CAB offices over dinner from a local restaurant. In this conversation we summarized insights from the first conversation, and collectively reviewed and refined the distilled principles from the literature (Table 1). Following these discussions, the UCSC coauthors revised the principles, incorporating new elements emphasized by CAB. All members iteratively edited the principles until satisfied with the final product.

Several components enhanced the methodological rigor and trustworthiness of our approach. We engaged in three forms of triangulation to improve the credibility of our findings (Patton, 1999). First, we relied on multiple investigators to read, discuss, and cross-check one another’s understandings of the data, leaving room for multiple interpretations and engaging in ongoing reflexive discussions around our assumptions (see investigator triangulation; Adler, 2022). Second, in sharing our synthesis of the literature and summary of the grounded conversations with CAB partners, we engaged in a form of member checking where community partners provided feedback on how our meaning-making (mis)aligned with their own perspectives (Adler, 2022). Finally, in studying and synthesizing across various theoretical perspectives and frameworks, we employed theoretical triangulation to our analysis and sense-making of the

grounded discussions (Patton, 1999).

First Guided Discussion

We began the first guided discussion by asking CAB what they look for in potential partnerships. CAB shared key questions they consider when deciding whether to enter a new collaboration:

1. Does the partnership align with CAB's values and mission?
2. Is the partnership going to help the community that CAB serves? And conversely, might the project harm the community?
3. What can CAB offer? For example, does the project align with CAB's expertise and capacity?

These considerations led to discussion about CAB's experiences with strong and challenging partnerships. CAB highlighted difficulties when collaborators sought their involvement in projects with fixed visions or rigid timelines, using CAB as a resource rather than a codeveloper. In contrast, CAB described strong partnerships as those built on mutual understanding and respect, and highlighted the value of developing a relationship beyond the work itself. Finally, the conversation shifted into discussion about CAB's mission and commitment to community-driven action. CAB highlighted community organizing and responsiveness to community needs as central to their operation, emphasizing the challenge of reaching those furthest from essential systems, such as health care and education, and CAB's role in advocating for these communities. Reflecting on their own relationship to their work, CAB coauthors expressed that "being at CAB is not just a job, it's a mission—it's a mindset." They noted how their strongest relationships are those with partners who share this dedication to community work.

Second Guided Discussion

During the second guided discussion, UCSC coauthors summarized key findings from the first discussion and invited CAB coauthors to expand or refine them. The team then discussed the eight principles identified in Table 1. CAB coauthors were invited to respond to the following open-ended questions:

1. How have the priorities reflected in the literature-derived set of priorities emerged (or not) in your own collaborations? What would you change or add as

important practices?

2. In past partnerships, how have you felt (or not felt) valued and respected by your collaborators?
3. How could university partnerships be improved, drawing from your other types of partnerships with CBOs, foundations, and so on?

CAB coauthors particularly emphasized three priorities as foundational to strong relationships: (1) aligning values, (2) building trust, and (3) honoring capacity. They further underscored that two principles—practicing reciprocity and acknowledging positionality—are integrated within other principles in the literature but are so central to strong partnerships that they should be identified as core principles (see Table 2). Reciprocity and positionality are both prevalent concepts in the university–community partnership literature but were not included in our initial list of eight partnership priorities. Although we focused our analysis on literature examining university–CBO partnerships, there are also parallel bodies of literature, such as that on Indigenous methodologies, that center principles of reciprocity and positionality (Denzin et al., 2008; Kirkness & Barnhardt, 1991; Kurtz, 2013; McGregor & Marker, 2018; Porsanger, 2004; Simon et al., 2023). We acknowledge and honor those contributions and explore their meaning in the context of university–CBO partnerships, adapting these ideas to our own partnership experiences.

CAB Perspectives on Literature-Derived Priorities for Partnerships

Overall, CAB coauthors affirmed that the eight priorities summarized in Table 1 function as essential building blocks for meaningful collaborations. CAB emphasized the importance of aligning values, building trust, and honoring capacity; thus, we focus our attention on these three priorities. In the following sections, we use our guided discussions and two examples of CAB partnerships (see Appendices B and C) to illustrate these priorities in practice. The quotes presented in the following material, unless otherwise attributed, occurred during our guided discussions.

Aligning Values

CAB is a mission-based organization, so the most decisive factor underlying the decision for CAB to form a collaboration is whether

Table 2. CAB-Informed Refinements to Partnership Priorities

Priority	Explanation
Literature-derived priorities	
1. Aligning values	Ensuring partnership values and goals are mutually compatible and rooted in community priorities.
2. Building trust	Establishing and maintaining relationships based on shared accountability and mutual respect beyond one collaboration.
3. Clarifying expectations	Clarifying and agreeing on roles, responsibilities, and goals.
4. Honoring capacity	Communicating, respecting, and planning around the strengths and limitations of all partners.
5. Sustaining the partnership financially	Securing equitable compensation for individuals and ensuring adequate funding to support long-term, impactful partnerships.
6. Focusing community leadership	Prioritizing community-driven decision-making, leadership, and ownership throughout the collaborative process.
7. Committing to social change	Contributing to long-term, justice-oriented transformation beyond individual projects.
8. Centering community-based knowledge	Subverting traditional epistemic hierarchies, centering community-based knowledge rooted in lived experience.
CAB-informed additional priorities	
9. Embodying reciprocity	Inviting and empowering each partner to give what they can to the partnership.
10. Acknowledging positionality	Recognizing and openly discussing how identities, from the individual to the institutional level, and related power dynamics, shape relationships.

the proposed partnership aligns with their mission to serve their community:

Our service areas and our mission—to me that’s the foundation. Are we aligned, is this serving our mission, or is this distracting us . . . is this going to serve the mission of our agency and impact the community in a positive way? That’s it. Everything else is “what do we have the capacity for?”

CAB seeks alignment with their collaborators through demonstrated shared values and respect for CAB’s ongoing work. They assess whether the outcomes of the proposed collaboration support their mission, which is to serve CAB’s community—low-income residents of Santa Cruz and Monterey counties. If a proposed collaboration serves university students but not CAB’s community, it lacks mission alignment:

It’s not just about the student experience, which we [do] value, but that’s not the primary outcome for the community-based organization.

When researchers approach CAB with a pre-defined, inflexible agenda and timeline, CAB struggles to align the project with the needs of the community they serve. CAB contrasted negative experiences of those who “parachute in and out” with an example of successful, highly aligned collaboration. This story illuminated a fundamental step in creating mission alignment with university partners, namely active listening:

He [a university professor] came to us [CAB’s physical office] like you do. . . . He didn’t bring in a project and dump it, we had conversations about the questions we need answers to. . . . [His partnership] helped us build stories and

narratives, impacting the systems that ultimately help support resources for our work. . . . Because of how he worked with us to frame the narrative of one of our programs, then the system, the county funding decision-makers, were able to hear the story in a different way . . . and we were able to get funding.

When partners asked and listened to what questions CAB needs answered, the project was more likely to reflect the priorities of the community CAB serves. However, in CAB's experience, this curiosity about what CAB needs is frequently missing in partners' preexisting agendas or assumptions about community needs:

For example, we have a sponsor who's funding us for something, but they come with an agenda, and they want to check their box. And when we talk to them about what it is we actually need and what the families need, what the clients need, they're not really all that interested. There's one thing that they want to do instead of being flexible and open to seeing what the needs are and hearing from us. The way they talk to us is super top down.

Moreover, value alignment for CAB is critical not only with collaborators, but also when determining funding sources for their organization. Alignment requires careful ethical considerations, as CAB has had a practice of not accepting funding from sources whose operations ultimately harm the community they serve

Building Trust

Beyond mutual mission alignment, CAB views their best partnerships as the ones "where you can rely on one another" and trust one another beyond the immediate project. CAB coauthors described examples of partnership proposals in which potential collaborators asked for exactly the same project commitments, but in some cases the collaboration never worked out because "the relationship component was missing." Thus, the trust component sometimes determines the future of a partnership even more than on-paper project demands. Collaborative relationships founded on trust enable partners to navigate challenges when they inevitably come up, whereas without that foundation, obstacles can derail the project:

When we deal with hiccups and that relationship is there, we can get through them, because we rely on that foundation: the relationship.

In trusted relationships, each partner is aware of and supportive of the evolving needs of their collaborator. For example, CAB described their trusted relationship with the CEO of a foundation and how the foundation's response after a disaster demonstrated their ability to anticipate the needs of CAB and their community:

Sometimes we'll end up calling them but sometimes they'll call us. They'll ask, what do you need? Especially when we were so overwhelmed. I love that. That awareness that this [disaster] is probably impacting your community, let me just reach out, let me just see how you're doing. Do you have any needs and what can we do? What can we do together?

CAB described trusted relationships as ones in which they can "just check in and the other partner would do the same for you." They emphasized the need to solidify a partnership beyond a Memorandum of Understanding and beyond compensation, through an ongoing "dance" that builds on itself over time and beyond the timeline of one project.

Furthermore, trust fosters an openness to embracing friction as a necessary growth component of cocreation. In trusted partnerships, there is space to challenge ideas and introduce new perspectives. Welcoming friction demonstrates respect between partners by valuing their contributions as meaningful even when they are different.

You might be part of a partnership, and you may have some truth to tell that may not be supporting the way things are headed. Does that partnership value those that have different things to say? Challenging things to say? . . . Is there space for that? To me that makes a huge difference.

Honoring Capacity

CAB coauthors emphasized honoring capacity as a critical component of trust-building. They appreciate partners who are sensitive to CAB's workload, who understand the need

for flexibility as a reality of community-based work, and who recognize a “seasonality of change” in partnership work. For instance, they described being overloaded at the end of the year, thus requesting to move our second guided discussion for this article from December to January. Further, honoring capacity includes demonstrating respect for CAB’s existing, ongoing work and adapting projects to fit the scope of CAB’s mission instead of prioritizing new ideas. CAB described difficulty working with partners who lack this understanding:

We have to understand the need for flexibility in this work—if it’s community work, it needs flexibility. We need to pivot, and that is hard, but it is a requirement of the work we do.

In addition to respecting CAB’s capacity, collaborators must also be mindful of their own capacity, carrying out their commitments to move the collaboration forward.

Priorities at Different Partnership Levels: Reciprocity and Positionality

CAB’s experiences demonstrate that partnership priorities matter at different scales, from the individual to institutional level. The individual level involves relationships between individuals with a view toward building trust for longer term collaboration. Such relationships could be achieved formally (i.e., through project-based work or attending one another’s events) or informally (through sharing meals, etc.), or a combination of both. The institutional level encompasses broader partnerships between universities and communities or community organizations, shifting from individual projects to institutionalized structures, practices, policies, and commitments.

CAB recognized that some of their partners worked at institutions with larger barriers to embodying the outlined partnership priorities than others. For instance, partnerships involving individuals from a teaching-focused university with a service-learning program were facilitated by overlapping institutional mission alignment. The service-learning program was synergistic: Interns gained professional experience at CAB, and their skill set was appropriate to support the nonprofit’s work. In contrast, although individuals at a research-intensive university may share aspects of CAB’s service-oriented mission,

their institution’s research-focused mission was less closely aligned. However, even at a research-intensive university, CAB coauthors recognized the role of programs such as CRL in creating more supportive conditions for individual partnerships, and a path toward stronger partnerships at the institutional scale.

CAB coauthors considered mutual recognition of the institutional contexts surrounding individual relationships a key partnership strength, as an individual’s partnership work is embedded within the supports or constraints of their institution. Those individuals who embodied the partnership principles in their relationships with CAB, even when their institution did not, were repeatedly distinguished by CAB. However, CAB perspectives suggested that, although some individual partnerships with academics at research-intensive universities met their partnership priorities, institutional-level partnerships did not, in large part because they did not exist. CAB expressed frustration with the number of requests for collaboration they have received from faculty based at the same university: “When we get approached by different entities at this university, folks there don’t seem to know what other folks at their institution are doing.” Although individual faculty involved in this example may be seeking to establish partnerships that align with CAB’s mission, this effort is constrained by the lack of institutional structures for coordinating university–CBO partnerships. Referencing CAB’s institutional partnership with that university, which lacked such structures, a CAB member said, “We need bones for the partnership; there are no bones yet.”

In the following section we describe two priorities that emerged as central to CAB’s approach to fostering strong relationships—embodying reciprocity and acknowledging positionality—and discuss how these priorities emerge across both individual and institutional scales. Importantly, these priorities were not explicitly captured in our codes from the literature review, revealing how a partner-centered methodology nuances and extends literature in this area.

Reciprocity

In the best university relationships, CAB emphasized that benefits of any partnership were not one-sided, but instead comprised reciprocal exchanges of knowledge, services, or career support, and were key to healthy

partnerships at individual and institutional levels. As a CAB coauthor expressed, these offerings were not transactional, but rather were based on a shared commitment that “everyone brings what they can to the relationship.” For the community partner, “bringing what they can to the relationship” involves accommodating not only the limits of existing capacity, as described earlier, but also the positive capacity for CBOs to contribute institutional knowledge and skill sets that support novel forms of academic collaboration.

We adapt Kolm & Ythier’s (2006) definition of reciprocity in this context: “Reciprocity is treating others as they treat you, because [of a shared mutual respect] and not as the result of some agreed upon or expected exchange” (p. 376). We add that reciprocity includes recognizing each partner’s unique strengths and actively creating opportunities to catalyze those strengths. For example, CAB described how a relationship with a professor evolved over time, from a project that addressed a specific need to his position on the advisory board for a CAB program. A key moment that solidified that relationship was the professor asking CAB for a letter of support for a tenure review. This mutual benefit is part of the “dance” that builds trust between partners by demonstrating respect for each partner’s respective contribution. At each step, partners gave time, resources, and expertise appropriate to the situation without the expectation that these contributions would immediately yield some return.

At the institutional level, CAB saw the university’s strength as offering education—a tool for improving employment opportunities and social mobility—yet they saw little evidence of the university employing this strength to support CAB’s work of poverty reduction. Despite being less than 20 miles away, few youth from CAB’s community attended the university or saw the university as a possibility. A CAB coauthor shared, “There is the gap. The university is not serving our community. It is not a vision for our families, our clients, our parents, our kids.” The lack of participation from CAB’s community in the university is a significant loss for the university and a missed opportunity to learn from those students’ perspectives, both academically and through their contributions to the university community.

Higher education could also develop a skilled hiring pool for nonprofit staff positions, yet

the university had cut programs, such as Community Studies, that prepared students for these positions. By failing to provide its most relevant contribution—higher education—to antipoverty efforts in the community, the university was not effectively practicing reciprocity.

Positionality

CAB coauthors stressed that positionality must be explicitly acknowledged and discussed between collaborators, as positionality shapes how we relate to one another and our work. Positionality influences relationships at individual levels and at the institutional level—in how the institutions that partners represent shape power dynamics, both present and historical. How we engage with positionality determines whether our partnerships are grounded in mutual respect or reproduce deeply embedded inequalities.

CAB coauthors discussed how positionality shapes how they feel respected or devalued by collaborators. One coauthor reflected on a moment when she was invited to be present, but was not heard, and her voice as a woman of color was completely dismissed. Her verbal contribution was ignored until it was repeated by a White man in the room. This dismissal of her perspective demonstrated a lack of value for her contributions and lack of respect for her person, and effectively ended the relationship. As the coauthor shared,

I knew I was the token in the room for so many reasons. And I accepted the responsibility of being the token in the room. . . . But being invited to be in the room and not being acknowledged or my contribution not being acknowledged until the White man in the room said it, to me that severed the relationship . . . the valuing part is what keeps me there or not—if my contributions matter.

In contrast, CAB coauthors emphasized that leaders of color have a certain understanding of shared experiences that creates common ground on which to build the kinds of relationships that form strong partnerships.

I think people of color understand it [respect] better, there’s something there. There’s an understanding where leaders of color have a shared experience, that respect doesn’t have to be earned in the same way.

I don't have to prove myself to you, and you don't have to prove yourself to me.

Recognition of the institutional backdrop of individual partnerships was also central to this theme. Indeed, the positionality of individual academics was considered particularly important because of their larger institutional context at a historically White, elite university.

If the representatives of that White institution on the hill come as White representatives of that institution on the hill and all that that means, that's a different experience.

The positionality of the university-affiliated partners, their institution's positionality, and the individual's awareness of these positions shape the partnership dynamics and the terms on which equitable cocreation can occur. Most universities are predominantly White institutions; this reality affects the partnership context.

Finally, CAB coauthors additionally discussed the need for their partners to understand CAB's position in the context of the diverse community they serve. One coauthor described an instance when they were treated by a university partner as an "ambassador" for the community involved in a project, when they do not identify as a part of that community. A researcher made a false assumption about lived experiences of the CAB staff member. In addition to making the CAB staff member uncomfortable, the mistake revealed the researcher's lack of awareness of positionality. This incident reinforces our concept in Figure 1 (Axes of Partnerships), where we discuss how some researchers treat "community partner" as synonymous with "community," disregarding the unique positionalities of each individual, and treating "community" as a monolith. Explicitly acknowledging and understanding positionality is a step toward avoiding this kind of mistake that damages the relationship.

Discussion

Many robust frameworks outlining guidelines and principles for partnership exist (Levkoe et al., 2016; Littman et al., 2021; London et al., 2022; Sandy & Holland, 2006; Williamson et al., 2020). Several of these works synthesize best practices based on

the perspectives and standpoints of academic researchers (Fitzgerald et al., 2010; Pasick et al., 2010); others center the perspectives of CBOs by interviewing them or inviting them to coauthor these frameworks (Oster & Lightning, 2022; Rinaldo et al., 2022; Worrall, 2007). Beginning from these insights, we sought to build dialogue about this robust literature as academic and CBO partners to develop a deeper understanding of the conditions that facilitate strong relationships. CAB partners expressed excitement about this approach, sharing that in their 30+ years partnering with the university, they had never received such an invitation to discuss scholarly literature as a reference point for collaboration.

Indeed, published research on the insights gained from coanalyzing synthesized partnership literature with community partners does not yet exist to our knowledge. The principles that emerged as priorities for CAB are well-documented in literature, including the importance of building trust, aligning values, and honoring capacity (e.g., Darling et al., 2015; Fitzgerald et al., 2010; Levkoe et al., 2016; London et al., 2022; Rinaldo et al., 2022; Sandy & Holland, 2006; Williamson et al., 2020; Worrall, 2007). At the same time, these priorities are discussed and interpreted differently across partnerships and partners, so defining them together is critical to working toward them. For example, embodying reciprocity and acknowledging positionality are central to participatory action research (PAR; Littman et al., 2021; Maiter et al., 2008; Ochocka et al., 2010; Robertson, 2000) and Indigenous (Kirkness & Barnhardt, 1991; McGregor & Marker, 2018) methodologies but less commonly practiced (or understood differently) in service-learning and engaged STEM fields. Delaine et al. (2024) noted that in engineering contexts, reciprocity is not frequently a priority in service-learning and community engagement (SLCE) literature. Coding for elements of reciprocity in engineering SLCE publications, they found "generally exploitative" areas included how power relations were addressed, the treatment of knowledge, the structuring of relationships, and elements related to community, with harmful dynamics highlighting a lack of attention to positionality.

Similarly, Hammersley (2012) built on scholars (Oldfield, 2008; Stoecker & Tryon, 2009) who critiqued the "myth of mutual

benefit” promoted in service-learning literature, attributing unsubstantiated claims of reciprocity to limited inclusion of community partner voices. Ultimately, Hammersley argued that service-learning partnerships would be significantly strengthened by integrating principles from PAR and other decolonizing methods—methods that often embody more nuanced understandings of reciprocity and positionality. When reciprocity does appear outside Indigenous and PAR methodologies, reciprocal practices may be framed in transactional terms around mutual benefit—what Knight (2022) called “thin reciprocity.” McGregor and Marker (2018) observed that Western frameworks of reciprocity tend to emphasize self-interest, exchange, and “the ethos that it is ultimately undesirable to be dependent on or responsible to others” (p. 322). In contrast to “exchange,” Dostilio et al. (2012) described “generativity” as the most transformative orientation to reciprocity, where partners cocreate knowledge and outcomes that neither could produce alone, transforming individual ways of knowing and being. Generativity is what Knight (2022) would term “thick” reciprocity and aligns closely with the values expressed by CAB coauthors—an orientation to partnership as a process of equity-based coconstruction. These examples demonstrate the necessity and value of engaging in deliberate, collaborative processes, like the methodology we used, to iteratively redefine partnership priorities that, while frequently cited across different contexts, can hold different meanings in practice and require this dialogue to enact meaningfully.

In coanalyzing these terms and processes with CAB, we could better capture nuances in the meanings of these priorities. For example, CAB opposed “mutual benefit” interpretations of reciprocity where dependence on others is undesirable, instead welcoming the ability to depend on one another as a privilege and defining feature of strong, reciprocal partnerships. CAB coauthors also understand reciprocity as inseparable from positionality, acknowledging how identity and power shape reciprocal relationships. Their perspectives demonstrate how identity and power shape all collaboration, and their critiques of tokenization and misrecognition demonstrate the consequences of ignoring these dynamics. These ideas resonate with Indigenous theories of reciprocity that similarly intersect

relationality, positionality, and reciprocity. As McGregor and Marker (2018) wrote,

There is no clean promontory for viewing reciprocity between the researcher and the researching with Indigenous peoples. It is a swampy forest; we make our way through this landscape slowly and carefully knowing that we carry along power, history, and colonization as both maps and encumbrances. (p. 320)

In capturing nuanced understandings of partnership processes with CAB, our adapted set of priorities (Table 2) does not simply reflect a refinement of existing literature. Rather, they represent the ongoing result of our relational process, where our team created conditions in which new understandings of partnership could be generated, contested, and reimagined. That is, rather than view these principles as a universal checklist for strong partnerships, we focus on the process by which they were derived, which we argue aligns with the kind of partnerships illustrated in Figure 1, Framework 2. Our collaborative guided discussions allowed us to identify and define core principles and understand the processes that work toward achieving them.

Specifically, our methodological approach enabled us to reconsider rigid delineations between different constituents and instead emphasize the dynamic nature of relationships and roles within these partnerships. The design of our guided discussions—co-facilitated, intentionally informal, situated in community spaces, and driven by mutual curiosity—functioned as embodied practice of reciprocity and positionality. We outline the implications of our learnings from this methodology for interactions with partners and institutional practice.

Deepening Relationships Through Partner Interactions

Unlike other participatory approaches, such as PAR, where research questions often emerge directly with and from the community (Cornish et al., 2023), we entered these conversations with a specific interest: to better understand the role of relationships in partnerships, and how to strengthen them. Our talking methodology illustrated how we moved from abstract principles derived from the literature to concrete experiences, revealing nuances in how these principles are enacted in practice.

This structure sparked mutual curiosity and excitement among partners, allowing us to reshape our preexisting intentions. Through organic conversation, we not only generated rich insights but also deepened our relationships and made the work feel joyful with genuine connection, ease, and frequent laughter. The insights that emerged from this informal process were certainly more unexpected than what we would have discovered had we relied on a fixed set of guiding questions or appointed one facilitator.

This focus on relational dynamics invited reflection on the everyday interactions that sustain collaborative work. Interestingly, many of the priorities outlined in Table 2 centered on improving everyday interactions at the individual level. CAB coauthors emphasized the significance of everyday ways in which partners engage—building trust, practicing reciprocity, and respecting positionality. Simple gestures like checking in without an agenda, actively listening, or offering flexibility are indicators of relationships that extend beyond traditional project outcomes. The importance of these actions corroborates Leiderman et al.'s (2002) finding that “good partnerships are created and sustained over time, through the cumulative effects of even the most routine interactions and outcomes” (p. 5). CAB coauthors extend this insight by identifying and theorizing the everyday relational practices that are foundational to strong relationships. These everyday interactions are practices of internal maintenance, what Strier (2014) distinguished as efforts that deepen the relational fabric of collaboration; internal maintenance reflects a distinct goal from the pursuit of “organizational effectiveness.” We offer these findings as a contribution to the growing scholarship that centers ethics and relationships in community-engaged research (Banks et al., 2013; Blee & Currier, 2011; Cordner et al., 2016; Mikesell et al., 2013; O’Sullivan et al., 2023).

Limitations of Our Approach

We recognize important limitations of our approach. The breadth of our review of literature sources came at the expense of depth within any one particular subfield or disciplinary perspective. As a result, the review is not comprehensive of the full body of scholarship within each discipline, and relevant literature may have been missed due to the limitations of our search strategy. Indeed, the final set of 12

sources reflects a relatively small sample size. Future researchers might consider in-depth explorations of particular disciplinary spaces to unpack meanings behind these principles further.

Expanding the inclusion of “researcher” or “community” perspectives is another area for future research. The perspectives presented here did not include members of the community that CAB represents—low-income residents of Santa Cruz and Monterey counties. The principles we elevated may not be top priorities for community members who are not employees of CBOs/universities, or for research partners in other contexts. Broadening these perspectives also serves to gain a situated definition of diverse partners’ priorities and practices to support them. Future scholarship can continue to elucidate the conditions under which everyday talking methodologies create mutual understanding of partnership priorities. It would be particularly illuminating to involve community members, like those served by CBOs, in these types of discussion.

Conclusion: Collective Accountability for Individuals and Institutions

Our set of principles both provides a structure for individual researchers seeking to engage in more equitable, community-driven partnership, and illuminates the institutional priorities required to catalyze and sustain partnerships. For individuals, our principles offer tools to introspectively evaluate engagement and shift toward more responsiveness to community needs.

However, partnerships require institutional support to be sustained long term through the implementation of policies and distribution of resources; these actions recognize strong relationships as central to the university’s mission, valuing work that prioritizes the relationship as both rigorous and worthwhile. Indeed, in our discussions, it became evident that even when individual relationships are thriving, institutional barriers create challenges to sustaining partnerships. This emphasis on the formative role of institutional context aligns with the finding of Park et al. (2026), who demonstrated that community perceptions of engaged research are inseparable from the university’s institutional history. We suggest that perhaps the substantive challenges to partnership posed by the university’s positionality, mission alignment, or approach to reciprocity explain, in part,

why the individual, relational element is so critical to sustained collaboration.

Although relationship-building practices are rooted in individual interactions, they are always shaped by institutional contexts. One of the most powerful insights from CAB coauthors was the importance of acknowledging intersectionality and positionality not just at the individual level, but as structural realities that inform how institutions engage in partnerships. Our findings call for a shift from university and community partners working together in parallel to actively “desiloing” through a foundation of shared values and a genuine curiosity to seek out opportunities for better alignment. Indeed, as offered by Figure 1, Framework 2, individuals are understood to inhabit multiple, sometimes conflicting subject positions that influence how they show up in a partnership—from institutional affiliations to racial identity and lived experience. CAB’s reflections demonstrate the necessity to consider these overlapping identities and power dynamics in the context of deepening relationships.

To enact the integrative model described in Framework 2, institutional engagement must also move toward a deeper orientation of reciprocity. In this vein, CAB coauthors offered several recommendations. These recommendations broadly focus on enhancing institutional accessibility and representational equity to create opportunities for reciprocity that catalyze the unique strengths of university partners, community partners, and individuals spanning each. To make a research-focused university more accessible to local students, the university could organize a campus tour day specifically for

Watsonville students. The university could also develop paid internship opportunities for students to work at CAB; CAB greatly values these internship programs that exist at the local teaching-focused university. Further, CAB emphasized the importance of physical presence—“being there,” literally. The university could establish a dedicated physical space in Watsonville to demonstrate a commitment to long-term collaboration. Another suggestion was finding mission alignment between programs that are not as easily connected to CAB’s mission. These suggestions for the institutional scale are not isolated ideas, but rather express CAB’s view of partnership as intersectional and inherently shaped by power, relationality, and positionality.

Finally, CAB’s discussion of the power of positionality in their partnerships highlights one of the many needs for more faculty and students of color in academic institutions. Racial politics shift power structures and cultural barriers to collaboration; the process of forming good relationships is inherently different between White researchers and communities of color, and POC researchers and communities of color. Lived experience, education, and class positions are other aspects of social difference that must be acknowledged for their role in shaping relationships. Therefore, positionality changes how partners embody our set of priorities and realities for building partnerships. CAB’s reflections highlight the importance of considering *who* comes as an ambassador of the university; institutional reform is needed to create pathways that support leaders of color, including members of CAB’s community, in these roles.



Author Note

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Appendix A. Typology of University–Community Partnerships

Collaboration type	Example
Research: collaboration that engages both partners in investigation of a question of interest to both parties. There are many models and approaches to this type of collaboration, including community-engaged research and PAR.	Méndez et al. (2017) conducted an agroecology project in El Salvador combining the knowledge of more formally trained researchers with the expertise of smallholder coffee farmers holding deep knowledge of place and agricultural practices. The project evolved into a PAR process as farmers redirected the research questions toward the topic most relevant to their community priorities: food security.
Service-learning: educational pedagogy in which students engage in and learn through community service activities integrated with instruction and course outcomes (Voss et al., 2015).	Rinaldo et al. (2022) discussed the experiences of nine community partners who participated as service-learning sites through one southwestern university. The partner agencies provided a range of social services, including child social services, family crisis support, an arts community, a food facility, and a hospital foundation.
Extension: educational instruction, demonstrations, or other informative programs intended to share knowledge outside the institution or organization. Extension can occur through university programs for community members or vice versa, as community programs for university members.	The Extension Institute of Community Development at the University of Wisconsin provides educational programming, resources, and support to leaders, families, youth, communities, and organizations. They conduct needs assessments and partner with local organizations. Educational programming includes organizational and leadership development, community economic development, food systems, local government, and more (University of Wisconsin–Madison Extension, 2025).
Internship: university-affiliated students gain experience and provide services through job positions at community organizations.	The Internship program of Chicago’s Policy Research Action Group (PRAG) provides university students with paid internship positions codirected by both the university and CBO staff. Students participate in a range of topics, including barriers to employment, nonprofit roles in affordable housing, and environmental cleanup (Mayfield et al., 1999).
Policy advocacy or civic engagement: university–community collaboration on advocacy for public policy.	The Detroit Community–Academic Urban Research Center (URC) established the Neighborhoods Working in Partnership (NWP) project to strengthen policy advocacy skills and eliminate health disparities by translating research into policy change. The URC implemented a “train the trainers” program to support community leaders and their future mentees in policy advocacy (Israel et al., 2010).
Community-engaged creative art: collaborative creation of art, including music, performance, and exhibitions (Michigan State University, n.d.).	Through the Community Mural Project (CMP) at Skyline College, public entities, schools, NGOs, and businesses apply for murals. Skyline students then paint murals with environmental and social justice themes, teaching students art activism, skills in mural-making, and supporting critical reflection on identity and place (Skyline College, n.d.).

Appendix B. CAB-Identified Successful Partnership A: CAB & CRL Joint Postdoctoral Position (2024–ongoing)

A novel CBO–university partnership, coauthor Sidney Madsen’s postdoctoral position is jointly appointed and mentored by CAB and UCSC. Madsen’s time is split between UCSC and CAB offices, and her research projects are codesigned and comentored by CAB staff and UCSC faculty from the CRL and the Environmental Studies Department.

CAB coauthors described Madsen’s position as a “bridge” between CAB and UCSC. For CAB coauthors, the process of cocreating the position and jointly selecting for it was critical to its success:

From the initial sparks of a conversation about the possibilities, to whatever they [CRL] needed to do to write the grant, to including us in the recruitment and the job description, and the creation of the interview questions and the joint interview process—all those steps we [CAB and CRL] did together.

CAB coauthors emphasized that Madsen’s openness to cocreation facilitated the partnership’s success because she offered space from the start to listen to CAB’s hopes for the partnership:

What was very impressive to me about [Madsen] was [her] openness to hearing about what we needed [as opposed to coming in with a research agenda], so [she] embodied what we’re talking about here [in the present partnership article] in many ways.

CAB coauthors also highlighted Madsen’s attention to cultural humility and accountability to the community as integral to building trust. One remarked, “[Madsen] still double check[s] that [she]’s not hurting the community, or that [she’s] giving space for them to react, or for what they might think is an important process. And the community trusts [her].” This respect of community norms and community-based knowledge was perceived as a counterpoint to typical university tendencies to prioritize academically generated knowledge:

In the university . . . that values its own knowledge so much, you can lose perspective on all of the other institutions and their knowledge and the cultures within them and how valuable and different they are . . . what you need for somebody to have this type of position is humility of culture but also humility of knowledge.

As CAB coauthors articulated throughout these reflections, Madsen’s postdoc position as a partnership between CAB and CRL exemplifies many of the partnership priorities described in this article: “This is a best practice model postdoc . . . not only w[as] [Madsen] the most qualified [candidate], [she] had cultural humility and cultural understanding . . . and that has helped in [her] connection to Pajaro and [her] connection to the team.”

Appendix C. CAB-Identified Successful Partnership B: UCSC Professor on CAB Governing Board (2011–ongoing)

CAB coauthors emphasized the importance of UCSC Professor Eva Bertram’s long-term investment, 14 years, serving on CAB’s governing board. As one CAB coauthor noted, “We’ve had UCSC professors on our board before, but Eva’s invested a lot of time. She’s worked collaboratively with us, and she shows up for us as an agency.” One example has been her work (since 2016) with CAB staff on a series of biennial community needs assessments, required by the state as part of CAB’s strategic Community Action Plans. The collaboration has included evolving strategies to capture the experiences of the county’s hardest-to-reach communities, designing surveys that build on prior findings to capture multiple and layered challenges facing low-income community members, and working alongside CAB staff to analyze and interpret survey and focus group findings.

Bertram’s background bridges both academic and nonprofit work, and CAB highlighted her “social justice background” as important to the success of this partnership, representing value alignment with CAB’s mission. She has, at various points, worked with the joint board–staff Advocacy Committee on strategies to build public and policymaker support for CAB’s programs and priorities, and responded to requests for data or analysis on poverty and inequality trends and policy contexts; in each case, the collaboration was grounded in CAB’s articulated needs and priorities.

CAB coauthors also reflected on how Bertram has facilitated additional connections between CAB and other UCSC faculty and departments, helping to seed relationships and collaborations. “Her connections to the university have opened doors for us, have helped expand and enhance the work that we do.” This work includes an ongoing partnership with the UCSC Center for Economic Justice and Action (CEJA, where Bertram serves as associate director). CEJA has supported research related to CAB’s Community Action Plans and recruited and provided funding for undergraduate summer interns for CAB programs.

In multiple discussions, Bertram’s relationship to CAB was repeatedly cited as an important example of how an individual, representing an institution, can positively influence CAB’s perception of their relationship with the university. “I think it has absolutely shaped the agency,” one CAB coauthor reflected. “Her presence on the board, as a representative of UCSC.” Across these reflections, Bertram’s role as a long-term board member was repeatedly uplifted as an example of the kind of trusted, reciprocal partnership CAB strives to cultivate at the individual and institutional scale.

Paradigmatic Shifts in the Study and Practice of Community–Campus Partnerships

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Lori E. Kniffin, and Patti H. Clayton

Abstract

Partnerships are centrally important to the quality of service-learning/civic engagement (SL/CE), with implications for all forms of community engagement (e.g., participatory action research, outreach, extension) and with multiple partners (government, nonprofit, residents, special interest groups). However, these partnerships are an underexamined aspect of practice and an underdeveloped topic of scholarship. In this article, historical and contemporary developments within SL/CE partnerships, principally in the United States, are examined, such as shifts related to (a) focusing on them as a unit of analysis, (b) conceptualizing which stakeholders (if any) position them at the center, (c) embracing criticality in their practices, and (d) conducting them virtually in online service-learning. Exploring these shifts yields insights relevant for global practitioners as they seek to embed more authentic partnerships in SL/CE.

Keywords: service-learning, partnerships, transformational, reflection, democratic

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Service-learning has evolved through a dynamic history encompassing various paradigms (i.e., theoretical perspectives, political orientations, terminology, methodological approaches, disciplinary influences) around the world (see Tapia et al., 2024), including in the United States (Zlotkowski & Duffy, 2010). Both a pedagogy and a change strategy, service-learning and civic engagement (SL/CE) involve different forms of community engagement (e.g., service-learning, participatory action research, outreach, extension) and with multiple partners (government, nonprofit, residents, special interest groups). Although our primary focus is on service-learning, many of the aspects of our analysis of partnerships have implications for all types of community engagement activities, and we will note that accordingly (i.e., SL/CE). Service-learning engages students, community members, instructors, and staff in co-creating partnerships that integrate academic material, community-engaged activities, critical reflection, and assessment to advance public purposes and to achieve clearly articulated academic learning, civic learning, personal growth, and critical thinking goals (Bringle & Clayton, 2023, p. 479, as cited in Kniffin, Botkin, et al., 2023, p. 208). In addition, other forms of community engagement possess goals, learning outcomes, and evidence of contributions to the community and the campus. The potential benefits of partnerships to both community and campus have been documented around the world (e.g., Aramburuzabala et al., 2019; Pacho, 2019; Tapia et al., 2024; Xing & Ma, 2010).

Community-campus partnerships are integral elements of all SL/CE: “They are the heart of new paradigms for framing activities in the community that can be just and meaningful because they integrate knowledge, resources, experience, and questions from a variety of perspectives” (Bringle & Clayton, 2023, p. 482). Numerous possibilities emerge when considering potential types of partnerships: They may be local, international, or virtual, and they may occur inside, between, and among the campus, nonprofit or for-profit organizations, government agencies, funding agencies, faith-based institutions, special interest groups, residents, and schools. Bringle and Hatcher (2002) examined partnerships as a series of interpersonal relationships that have different stages (initiation, development, maintenance, dissolution) and dynamics (exchanges, equity, distribution of power).

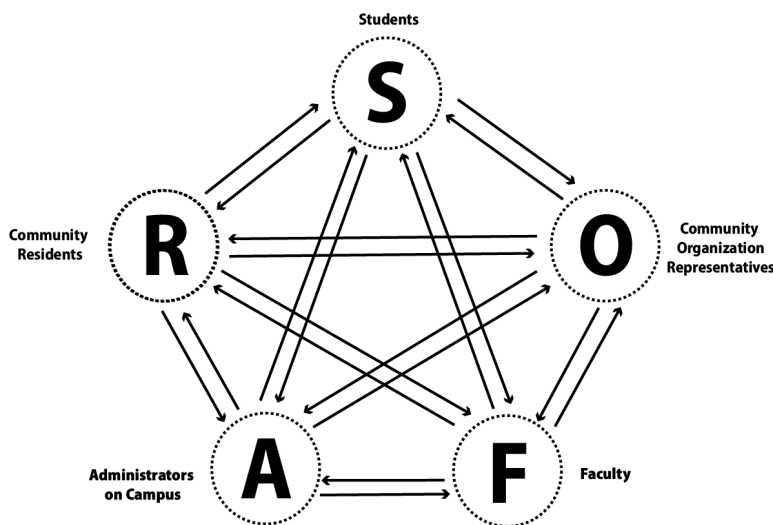
Although service-learning presents fundamental shifts in teaching and learning and in epistemology (Kniffin, Clayton, et al., 2023), we focus on significant calls for change that give rise to elements of paradigmatic shifts related to its core partnership processes. Five historical trajectories of service-learning in the United States, and to varying degrees elsewhere around the world (Tapia et al., 2024), have involved refocusing the ends toward which it is implemented: social justice (Phase 1), disciplinary learning (Phase 2), student-centered learning (Phase 3), democratic civic engagement (Phase 4), and social justice/critical service-learning (Phase 5; Bringle et al., 2014; Clayton & Bandy, 2021; Zlotkowski & Duffy, 2010). Each of these phases has had implications for how community-campus partnerships are conceptualized, studied, and practiced in the United States and elsewhere. Just as Copernicus faced a geocentric view of the universe and worked to shift it to a heliocentric view, service-learning practitioners have faced campus-centric views of service-learning and have called for alternative models (e.g., Saltmarsh et al., 2009; Srinivas et al., 2015; Stoecker & Tryon, 2009). Our purpose is to document some of these shifts regarding how community-campus partnerships have been conceptualized, analyzed, and practiced during the past 30 years. Each of these shifts is unique in nature (e.g., proponents, disciplinary perspectives, origins, motivations, consequences), but each raises issues about epistemology and inquiry that both ease and generate tensions. We presume that

delineating some of these dynamic shifts will assist practitioners and scholars around the world as they advance future work on partnerships in SL/CE.

As part of our analysis we will present the Transformational Relationship Evaluation Scale (TRES, pronounced “trees”) reflection framework as one approach for understanding the nature, quality, and development of community-campus partnerships in community-engaged activities, including service-learning. We are aware that there are other frameworks for understanding, analyzing, and improving community-engaged partnerships. Sometimes approaches focus on the project, sometimes a community issue (e.g., health, environment), sometimes at the campus level, and sometimes at the network level (e.g., networks of universities, networks of community agencies). For example, Loh et al. (2021) examined partnerships in terms of relationships and power, noting that partnership development is an appropriate and meaningful outcome in its own right (a position with which we agree). Farnell et al. (2025) examined partnerships on three core dimensions: outcomes, process, and ethos. The SPACE Partnership Resource Kit from Europe presents a partnership planning grid, a partnership assessment survey, a partnership dialogue framework, and a dialogue report template. Another example of a framework is the HEI-Community Partnership Index, “a 47-item questionnaire designed to provide a comprehensive understanding of a given HEI-community partnership’s strengths and areas for improvement across the three broad categories of assessment (inputs, process, and outcomes)” (Plummer et al., 2022, p. 11).

Partnership as a Unit of Analysis

The early developers of service-learning in the United States in the 1960s and 1970s viewed achievement of its purposes as dependent on partnerships, particularly within communities (Ramsay, 2017). Higher education’s interest in service-learning in the 1980s and 1990s resulted in a shift to emphasizing student-centric and campus-centric frameworks and rationales. In response, Cruz and Giles (2000) analyzed the historical, political, intellectual, and practical aspects of the excessive emphasis, at the time, on student outcomes in scholarship and research on service-learning. They proposed that the partnership itself—distinct from student or community processes or

Figure 1. The SOFAR Model of Relationships

Note. From “Partnerships in Service Learning and Civic Engagement” by R. G. Bringle, P. H. Clayton, and M. F. Price, 2009, *Partnerships: A Journal of Service-Learning and Civic Engagement*, 1(1), p. 5 (<https://www.digitalgreensboro.org/record/601503?ln=en&p=bringle+clayton&v=pdf>).

outcomes—should be a unit of analysis for both scholarship and practice.

How can community–campus engagement partnerships, as a unit of analysis, be conceptualized, measured, and analyzed? Bringle and Hatcher (2002) drew from theories, research, and constructs from the study of interpersonal relationships to examine phases of partnerships (i.e., initiation, development, maintenance, dissolution) and dynamics of interpersonal relationships (i.e., exchanges, equity, distribution of power) as multiple dyadic interactions. This work led to developments related to interpersonal relationships and partnerships in service-learning. For example, we reconceptualized the phrase “campus–community partnerships,” which suggests the salience of a campus–centric perspective, to “community–campus partnerships,” which decenters higher education institutions.

Second, Bringle et al. (2009) presented the case that “community–campus partnership” is too simplistic as the unit of analysis because it does not clearly represent multiple stakeholders in SL/CE who can have interpersonal relationships and who contribute to outcomes for all stakeholders. They introduced the SOFAR model (see Figure 1) to distinguish the wide range of common partners in service-learning: students (S), representatives of community organizations (O), faculty (F), administrators/staff

on campus (A), and community residents (R). The SOFAR model does not limit SL/CE interpersonal relationships to only those entities or to only dyadic interactions but also supports examination of how interpersonal relationships between two individuals “can develop into networks, coalitions, common interest groups, and communities beyond these groupings” (p. 15). Third, they suggested that partnerships can vary on equity, with some being exploitative, some transactional, and others transformational, and they posited an E–T–T continuum for examining partnership quality.

Positing that partnerships can be an important and useful unit of analysis in SL/CE presented a challenge: Can the quality of SL/CE partnerships be measured, and what kinds of measures are meaningful? Measurement of the nature of partnerships can have implications for practice and for research by assisting in the analysis of why partnerships have certain properties, how they change over time, what the effects are of interventions to improve them, and how partnership quality is related to other outcomes (e.g., student learning, community outcomes). Building on the continuum of statuses identified by Bringle et al. (2009), which ranged from exploitative through transactional to transformational, Clayton et al. (2010) presented the Transformational Relationship Evaluation Scale (TRES, now referred to as TRES I) to operationalize the

measurement of partnership quality.

Kniffin et al. (2020) expanded the TRES continuum to include partnerships that are unilateral, with benefits flowing in one direction. The resultant EUTT framework (exploitative, unilateral, transactional, transformational) is a way of conceptualizing differences in the quality of SL/CE community–campus partnerships. They also presented a new measure, TRES II, grounded in the EUTT continuum, with 10 domains: goals, conflict, decision-making, resources, role of the partnership in each partner's work, role of the partnership in sense of self, extent and nature of interactions, power, outcomes, and satisfaction (later replaced with communication). In both versions of the TRES scale, respondents indicate which response under each domain best reflects the current status and which the desired status of the partnership, providing a basis for reflection on the past, present, and future of the partnership. TRES II explicitly broadened the focus of inquiry beyond interpersonal relationships to apply additionally to higher levels of networks (e.g., multipartner, interorganizational) and partnership entities.

The TRES II scale was embedded into the TRES II reflection framework, which is designed to heighten the tool's meaning-making potential and its implications for practice. The reflection framework employs the DEAL model of critical reflection (Ash & Clayton, 2009). The DEAL model begins with describing (D) an experience in an objective and detailed manner; in the case of the TRES II reflection framework, respondents (preferably from all categories of SOFAR) describe a partnership rather than an experience, guided by prompts regarding, for example, who comprises it, what activities it undertakes, what resources it uses, and the values that ground it. Participants are then prompted to individually examine (E) the experiences of the partnership just described in accordance with the desired learning goals or objectives. TRES II is part of the Examine section, as are prompts that speak to such issues as alignment of values, activities, and supports; degree of success in fulfilling purposes; and reconsideration of the range of participants in the partnership (using the SOFAR model to invite additional inclusivity). Finally, participants are asked to collectively articulate learning (AL) based on the two previous tasks (describe and examine) while continuing to deepen their

thinking and exploring actionable learning by considering specific changes they want to make (e.g., changes in how partners share power or communicate or make decisions). The reflection framework is intentionally designed to embody the characteristics of strong critical reflection as outlined by various scholars: It is contextualized and challenging (Eyler et al., 1996), structured and connected to both values and practice (Bringle & Hatcher, 1999; Hatcher et al., 2004), and designed to generate actionable learning (Zlotkowski & Clayton, 2005). Furthermore, the process is a democratic way of reflecting on and improving partnerships because it is participatory, inclusive, and fair (Saltmarsh et al., 2009).

Results of a multicampus study using the TRES II reflection framework confirmed that, for the first time, there is evidence that an intervention (i.e., critical reflection using the TRES II reflection framework by multiple members of a partnership) can lead to expecting improvements in community engagement partnerships and taking action steps to deepen them (Kniffin, Clayton et al., 2023). In addition to generating practice enhancements, it is also an important tool for research. Bringle and Clayton (2013) presented a research agenda that included examining multiple perspectives on partnerships (e.g., expectations, differences in values and outcomes), different types of partnerships (e.g., short-term vs. enduring, transitions in relationships), measurement strategies (e.g., self-report measures, non-verbal measures, focus groups), development of partnerships over time (no change vs. progression vs. regression), and relating the nature of partnerships to outcomes for different constituencies. TRES I, TRES II, and the TRES II reflection framework are useful and meaningful tools for subsequent research on these types of topics.

Who Is at the Center of Whose Table?

As operationalized in the TRES II scale, one of the keys to developing SL/CE community–campus partnerships that have desirable qualities is to surface—and often modify—how power operates. One of the ways power is expressed is through the acts of defining and convening the partnership “table,” roles most frequently held by instructors who establish projects well ahead of the beginning of a service-learning course or community engagement activity, but sometimes by students and by community members. A first

issue is “who initiates the partnership?” Glover and Silka (2013) pointed out that this is not only a practical question, but one that has implications for framing the partnership, how inertia influences agenda setting and power relationships, the temporal perspective, and epistemology.

Although all members of a partnership should have a seat at the table when designing, implementing, and assessing SL/CE partnerships, whose table people are being invited to has shifted within service-learning since its inception. Indeed, one of the founders of the pedagogy in the United States, Robert Sigmon (1979), insisted from the beginning that everyone involved in service-learning partnerships should be seen as and should function as teachers and learners, servers and served. As noted by another of the founders, at a time when numerous agencies and programs oriented toward community development and economic improvement were beginning to materialize (e.g., the Peace Corps), stakeholders from all sectors were called on to offer insights, marshal resources, and mobilize change agents as service-learning was being conceptualized (Ramsay, 2017). Perspectives shifted, however, on who convenes, where the table is, who is invited to the table, and whose outcomes matter most, especially as issues related to faculty work and curriculum development took center stage in the quest for legitimacy of service-learning as an academic endeavor (Zlotkowski, 1995).

Because service-learning was conceived mostly in pedagogical terms, academic partners (i.e., instructors, students) have been seen to hold primacy within service-learning partnerships—at least in terms of institutional power, which has taken precedence. As service-learning began to take hold as a curricular practice across institutions and came to be framed as an experiential approach to disciplinary learning in the United States, a pattern of instructor centeredness prevailed. Zlotkowski’s 21-volume series, *Service-Learning in the Disciplines* (Zlotkowski, 2006), is an example of how higher education professionals have given much attention to developing service-learning as a pedagogy across a wide range of curricula and largely for the sake of the disciplinary curriculum and student learning. Barr and Tagg (1995) highlighted the need for learner centeredness to emphasize not the teaching of content but rather the creation of conditions in which students

can best learn. Both the instructor- and student-centered paradigms can create situations in which the table is an academic one and community members are invited to that table to partner on the project—with “partnering” often understood to mean serving as a placement site, with no significant input, leadership, or power. The notion that academics often start the partnership has important implications for its nature (Glover & Silka, 2013).

This framing of instructor- and student-centered service-learning partnerships is not without critique and, indeed, is beginning to shift. Hartman et al. (2014) and Hartman (2015) called for a community-driven approach to service-learning partnerships, albeit one balanced by and integrated with a focus on students. The fair trade learning model that Hartman codeveloped with community members insists that “human and community flourishing on both sides of an exchange [i.e., community and campus] should be enhanced” (p. 98) and includes both community-centered standards (e.g., community preparation, local sourcing, reciprocity) and student-centered standards (e.g., student preparation, connection of service-learning to courses and learning goals, mentoring; see Hartman et al., 2014 for the full set of standards).

Stoecker and Tryon’s (2009) aptly titled book *Unheard Voices* called attention to the general lack of consideration of community voices and community outcomes that had come to characterize service-learning partnerships in the United States. They wrote that the almost complete focus on student learning excluded attention to community perspectives and outcomes, and they furthermore warned that service-learning that primarily serves academic interests may not just ignore but even undermine community interests and cause harm. Further developing the argument in his call for liberating service-learning from its overly academic orientation, Stoecker (2016) conceptualized service-learning as primarily a social change strategy, not a pedagogy, insisting that “community outcomes [be] the first priority” (p. 187) in service-learning partnerships.

Writing in *Unheard Voices*, long-standing community partner Mondloch (2009) drew on her own organization’s experience with service-learning to articulate and call for a powerful alternative that decenters any one stakeholder category: “It all comes down to

Table 1. Technocratic and Democratic Engagement Paradigms

Technocratic Civic Engagement (TCE)	Democratic Civic Engagement (DCE)
<i>For</i>	<i>With</i>
Deficit-based	Asset-based
Uni-directional flow of knowledge from credentialed academic experts; distinction between knowledge producers and knowledge consumers	Multi-directional, synergistic flow of ideas and questions within a web of knowledge centers; co-creation of knowledge
Engagement is apolitical	Engagement facilitates inclusive, collaborative, deliberative democracy
At best transactional exchanges	Potentially transformative partnerships (transformative of self, others, organizations/institutions, systems, paradigms); change result from co-creation
Hierarchical power dynamics	Powershifted dynamics that disrupt hierarchy and position all partners as co-educators, co-learners, co-generators of knowledge and practice

Note. Modified from *Democratic Engagement White Paper*, by J. Saltmarsh, M. Hartley, and P. H. Clayton, 2009, New England Resource Center for Higher Education.

one motto: ‘Everyone a learner, everyone a teacher, everyone a leader.’ That’s it. That’s the radical view of the world that changes how community works and shuffles the balance of power” (p. 136). Through this statement, Mondloch crafted the vision of an equitable table that is shared by everyone in service-learning rather than centered on any one entity. Even as a community partner, she does not argue for community-centered partnerships, but rather envisions a democratic process in which all partners contribute and learn. This systems-oriented understanding in which no one stakeholder group is positioned at the center is also embodied in the abovementioned SOFAR model of service-learning interpersonal relationships (Bringle et al., 2009). Through frameworks such as these, the table itself is shared, which makes inclusivity of community and campus partners more attainable and sustainable due to equitable power-sharing.

This decentering shift in how SL/CE partnerships are conceptualized and enacted was also explored by Saltmarsh et al. (2009), who identified two civic engagement paradigms. As articulated in Table 1 (modified from the original), the technocratic civic engagement model operates in a technocratic mode characterized by deficit views of community, with knowledge and information flowing from academic experts to communities. The authors documented and called for an alternative democratic

civic engagement framework that positions everyone involved in SL/CE partnerships as coeducators, colearners, and cogenerators of knowledge. This asset-based understanding of community encourages multidirectional flows of knowledge and therefore enables and, indeed, insists upon, the shared power and authority of full inclusivity in service-learning relationships.

The democratic framework illustrates an approach that decenters campus or community, broadening ownership of the table, and centers the partnership among all partners, the cocreated nature of the processes they undertake, and the public purposes toward which they engage with one another.

Critical Orientation to Service-Learning

Having emerged alongside and coexisting with Phase 4 (democratic civic engagement) is a fifth phase (criticality) that brings forward the original focus on justice with a systems orientation. Even when interacting in the same community, academic partners (students, instructors, administrators) and community partners (residents, organizational representatives, government officials, business community) in SL/CE partnerships may have different lived experiences of that community due to social (e.g., race), economic (e.g., socioeconomic status), or academic (e.g., access to higher education)

factors. Stewart and Webster (2011) observed that “social dominance is particularly relevant when discussing service-learning because of the structure, setting, and context of many service-learning activities” (p. xv). The turn toward critical service-learning starts with the concept of critical community service, which considers whether all participants in SL/CE have an opportunity to contribute to and learn from the partnership as well as whether the service experience is connected to broader social contexts (Rhoads, 1997).

As service-learning became more institutionalized in higher education in the United States in the early 2000s, power dynamics became more apparent: Service-learning was increasingly championed by marginalized instructors, disproportionately available to traditional-aged students who had fewer out-of-class responsibilities, and without a convincing record of bringing about meaningful social change (Butin, 2006). Upon examining the largely homogeneous demographics of college students at the time when service-learning was beginning to emerge in the curricula in the United States, which themselves have subsequently shifted significantly, it became clear that the usual approaches to service-learning tended to uphold practices and norms rooted in Whiteness and deficit-based approaches. Mitchell et al. (2012) observed that service-learning was “being implemented mostly by white faculty with mostly white students at predominantly white institutions to serve mostly poor individuals and mostly people of color” (p. 612).

Critical service-learning, initially named by Rhoads (1997) and more thoroughly examined and developed by Mitchell (2008) in the United States, moves beyond the dominant deficit-based, placement model, which these authors referred to as “traditional service-learning.” Critical service-learning is considered a departure from traditional service-learning in that the latter tends to emphasize student outcomes and does not explicitly engage questions of inequality, injustice, or oppression. Critical service-learning emphasizes the social contexts and power structures that are present in any service-learning partnership, an orientation toward social change, and the building of authentic relationships. Authentic relationships are rooted in breaking down barriers between campus and community and “self” and “other.”

Authentic relationships also depend crucially on a shift from deficit- to asset-based orientations within service-learning partnerships. The latter positions the language, structure, relationships, and orientations within a service-learning experience to “engage everyone with curiosity and care” (Bauer et al., 2015, p. 92). Bauer et al. observed that service-learning relationships can easily perpetuate problematic narratives and generate deficit-based frameworks of community, in which those engaging in the service-learning experience come to view their participation as “helping the needy” (p. 89), and they embraced a call for service-learning to shift from deficit- to asset-based framing, which focuses on community strengths, skills, and resources. The articulation of such distinctions further represents a shift from traditional to critical service-learning in that it calls on those involved in community-campus partnerships to examine how their practice and partnerships engage—or do not engage—issues of justice. The elements of critical service-learning are also present in other national and regional perspectives on service-learning (e.g., Tapia et al., 2024), particularly in the Global South.

In practice, several tools have been developed to guide educators, students, and community members in their work toward more justice-oriented service-learning partnerships and practices. The Critical Service-Learning Reflection Tool (Stith et al., 2021), for example, provides reflection guidance for instructors across five focus areas: authentic relationships, equitable classrooms and cognitive justice, reckoning with systems, social change skills, and redistribution of power. The section on authentic relationships asks participants to examine the ability of partners to cocreate systems and practices that support their joint work; develop shared understandings of identities, histories, and assets; and plan for long-term activities and priorities. These tools assist partners in both reflecting on their partnerships and making future commitments to implement practices that can lead to more equitable partnerships and experiences.

Virtuality

Not all paradigmatic shifts result from intellectual insights and the emergence of social issues. Explorations of the nature of virtual/electronic service-learning (eSL)

predated the COVID pandemic due largely to the global proliferation of technology, including its ever-increasing presence within higher education. Waldner et al. (2012) identified four ways in which the merger of service-learning and technologically supported distance education can occur, each with its unique combination of activities, products, partnerships, strengths, and limitations:

Hybrid Type I (service fully on site with teaching fully online), Hybrid Type II (service fully online with teaching fully on site), Hybrid Type III (a blended format with instruction and service partially online and partially on site), and extreme e-service-learning (100% of the instruction and service online). (p. 133)

Nevertheless, the COVID-19 pandemic forced many instructors, practitioners, students, and community partners to determine how they could safely convert service-learning courses to some form of eSL as an alternative to abandoning community-engaged activities entirely due to safety concerns. These revisions to service-learning courses resulted in a paradigm shift about the nature and structure of courses using digital technology as well as changes to the nature of the community-engaged activities and the relationships that support them. Indeed, according to Kniffin, Botkin, et al. (2023), fulfilling “the opportunity and obligation to intentionally incorporate digital technologies as a means of enhancing both access to and quality of education . . . opens new possibilities for service-learning partnerships” (p. 216). Acknowledging that access to the internet remains a challenge even among persons in developed nations, they noted that digital modalities “can make service-learning more accessible among students and community partners bound by geographic location” (p. 216). As another example that is particularly relevant to the study and practice of SL/CE partnerships, Kniffin, Botkin, et al. suggested that eSL raises such questions as “what ‘community’ means online, what responsibilities members of such communities have to one another, what it means to be civil in a digital world, and how relationships and dialogue form and deepen through remote interaction” (p. 217).

The way in which the widespread shift from face-to-face to virtual eSL was made during

the COVID pandemic raised challenges concerning inclusive and democratic participation in the redesign of courses, community-engaged activities, and the nature of partnerships (Ngai et al., 2023; Ong et al., 2023; Strait et al., 2023; Tan et al., 2025). We suspect that there was a spectrum of adaptations that ranged from a hurried, truncated scramble to keep a service-learning course going to more thoughtful, intentional transitions that integrated the best of service-learning with the best of distance learning (Tan et al., 2025). The latter case offers the possibility that eSL enhanced, rather than compromised, the educational experience in meaningful ways and that subsequent offerings of all service-learning can be improved due to a clearer understanding of how digital technology can contribute to service-learning partnerships, regardless of format (Strait et al., 2023). Tan et al. (2025) documented how institutional support and faculty development activities can be designed for eSL by combining principles of good practice for service-learning and for distance education, which can contribute to enduring SL/CE partnerships. Culcasi et al. (2023) developed an eSL course design framework that incorporates “partnerships” as one of three pillars, along with “places” and “people,” that contribute across four clusters of course design principles: basic principles, instructional design, engagement and inclusiveness, and availability of digital skills and resources.

As Hansen and Clayton (2014) noted, service-learning’s integration with digital technologies “might well give us entre into an untapped set of possibilities for re-examining, re-conceptualizing, and re-enacting” (p. 23) what it is to be in partnership with and within communities. To the extent that this potential is realized, the pandemic’s proliferation of eSL represents a paradigmatic shift. Bringle and Clayton (2020) identified some of the promising ways in which eSL can contribute to these shifts. They noted that although “community” typically has a local, geographic referent, online communities can be created with digital technologies that transcend local boundaries. Thus, the number, nature, and diversity of relationships with community partners and other SOFAR partners can expand through the use of technology. Although there can be structural tensions in creating online communities when partnerships span time zones, languages, legal frameworks, technological infrastructure, norms, and inequities,

multiple questions arise with these new approaches: How can online communities encompass democratic values in partnerships that are just, inclusive, and cocreated? How can the partnerships establish connections, understanding, and empathy among persons who will never meet face-to-face? What contributes to enduring virtual relationships and partnerships? How are community-engaged partnerships changed, particularly when dispersed students assume more responsibility for establishing partnerships in their home communities (Hansen & Clayton, 2014)? Bringle and Clayton (2020) summarized the potential for new approaches to service-learning partnerships when they asked, “Might the integration of service-learning and digital technologies enable many more individuals, across all walks of life, to experience being co-creative members of transnational, transdisciplinary, transprofessional, transgenerational communities formed, for example, around pressing public questions and issues?” (p. 58).

Conclusion

Prioritizing partnerships as units of analysis is a development consistent with the overall goal of advancing practice, research, and scholarship in SL/CE. Understanding who is involved in a partnership and who plays what role—using the SOFAR model as an example—allows a more thoughtful perspective on inclusion and power dynamics that are present in any community–campus interactions. This analysis of the evolution of various historical and conceptual perspectives on partnerships can contribute to the continuing analysis of how to assess them and how to design interventions that can foster their development around the world. It also allows a more detailed analysis of the process of partnerships and how their attributes might be related to personal, institutional, cultural, and civic outcomes.

We strongly endorse a process for the use of the TRES II reflection framework that draws heavily on collaborative reflection across SOFAR constituencies. This democratic process can also be a model for the use of other partnership frameworks (e.g., Loh et al., 2021). The TRES II reflection framework incorporates the DEAL reflection framework and contains elements of strong reflection (Bringle & Hatcher, 1999; Eyler et al., 1996; Hatcher et al., 2004; Zlotkowski

& Clayton, 2005). In addition, the collaborative process of collecting and sharing individual perspectives on a partnership embodies the attributes of a democratic process: inclusive, participatory, and fair (Saltmarsh et al., 2009). Finally, although there are other examples of interventions to improve community–campus partnerships (e.g., brokering; Levkoe & Stack-Cutler, 2018), to our knowledge the TRES II reflection framework is the only intervention for which there is evidence from multiple partnerships on multiple campuses that the tool and the collaborative reflection process can lead to expecting improvements in community engagement partnerships and taking action steps to deepen them (Kniffin, Clayton, et al., 2023). Although it is risky to speculate about additional paradigmatic shifts in SL/CE in the future, we expect that further developments in artificial intelligence, technology, spirituality, personal purpose and meaning, political democratic crises, interdisciplinarity, network analysis, and globalization may be precursors to subsequent paradigmatic shifts in the field, including partnerships. We look forward to subsequent complementary analyses of how community–campus partnerships have evolved in different political and cultural contexts and to the development of additional tools to improve community–campus partnerships.

This analysis of paradigmatic shifts in service-learning, with a particular focus on community–campus partnerships, is largely positioned on an analysis of trends and changes in the United States. We are aware that different regions and countries have experienced unique journeys concerning the assumptions, definitions, purposes, evolution, and processes of enhancing the curriculum through educationally meaningful community activities and partnerships to support that work (e.g., Aramburuzabala et al., 2019; Hall & Tandon, 2014; Ma et al., 2018; McIlrath et al., 2012; McIlrath & MacLabhrain, 2007; Netshandama, 2010; Northmore & Hart, 2011; Sachs & Clark, 2017; Shumer et al., 2021; Tapia et al., 2024; Watson et al., 2011; Xing & Ma, 2010). Nevertheless, we present the case that each of the paradigmatic shifts that we have described informs in different ways the practice, analysis, and inquiry on SL/CE partnerships elsewhere. We invite colleagues in other regions to explore the evolving nature of SL/CE partnerships in their context.



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Addressing the Town–Gown Relationship Through Experiential Learning and Placemaking: A Case Study at a Private Liberal Arts College

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Abstract

This study explores the role of placemaking in strengthening campus–community relationships through a mixed–methods approach at the College of Wooster in Ohio, United States, incorporating interviews, surveys, fieldwork, and external observation. The research identifies seven key themes—hubs, communication, transportation and accessibility, recreation, collaboration, community–facing events, and safety—as fundamental to fostering engagement between the college and its surrounding community. To address identified challenges and opportunities, the study proposes four strategic approaches: eventalization, physical modification, place rebranding, and spatial extension. These strategies align with placemaking principles, emphasizing sociability, accessibility, comfort, and activity to transform the campus into a shared, integrated space. Using a participatory approach and the Applied Methods and Research Experience (AMRE) model, the research emphasizes collaboration and iterative refinement.

Keywords: placemaking, campus–community integration, spatial integration, experiential learning, undergraduate research



Since their inception, universities have navigated complex associations with the communities that host them. Town–gown relations could be uniquely susceptible to tensions sparked by an institution of higher education’s expansion plans, student disruption, or a significant population boom during the academic year (Harasta, 2022). However, studies also have found that a healthy partnership can provide students with a sense of belonging and also propel innovation in the community (Massey et al., 2014; Pancholi et al., 2020). Given the potential for a symbiotic relationship, scholars have turned their attention to universities’ community engagement efforts (Bhatt & Singh, 2023; Gavazzi, 2022; Suarez–Balcazar et al., 2004).

The City of Wooster, with an estimated population of 27,030 in July 2023, acts as the commercial, retail, and recreational center of a mostly rural county in northeast Ohio (United States Census Bureau, 2023). Featuring a thriving and diverse economic

sector, the city has been named a “top ten micropolitan” area twice in the past decade (Policom Corporation, 2024). The community is also home to a robust network of nonprofit organizations that attend to a broad range of community and civic needs, including the arts, transportation, housing, addiction and recovery programming, and employment training. In addition to the College of Wooster, the city has been home for over 130 years to a campus of the Ohio State University’s College of Food, Agricultural, and Environmental Sciences, which hosts expansive graduate research programs and an associate–degree–granting unit. The city’s demographic makeup is less racially diverse than that of the College of Wooster’s student body, with 89% of the community’s population identifying as “White alone” (College of Wooster, 2024b; United States Census Bureau, 2022).

The College of Wooster is a small, residential liberal arts institution hosting 1,800 undergraduate students on 240 acres in the city

of Wooster, Ohio. Most Wooster students do not reside in Ohio, with 65% coming from outside the state. Twenty-seven percent are U.S. students of color; additionally, more than 85% of students receive financial aid, with 22% as Pell Grant recipients (College of Wooster, 2024b). Since its founding in 1866, the institution has been an integral part of the community. Alongside a diverse student body, the college provides several resources that are available to the public, including its art museum and libraries (College of Wooster, 2024a; Pill, 2017). The College of Wooster is also an economic asset, being named as a “major employer” by the county’s economic development entity (Wayne County Economic Development Council, 2024). However, challenges, including spatial constraints, communication issues, and incidents both on and around campus, have hindered the positive relationship between the college and the community, particularly after the COVID-19 pandemic.

In summer 2023, the College of Wooster hired a research consulting team of four undergraduate students and two faculty advisors to identify ways to improve interactions on campus between members of the campus and city communities. Synthesizing these data with themes from the literature on town–gown relationships and placemaking, the team developed a novel roadmap to guide the college’s initiatives toward improved community engagement on campus. In this article, we discuss a unique approach to student research, the placemaking framework’s theoretical foundations, and how it could be applied to enhance college–community interactions. In other words, we use placemaking as an interpretive lens for this study, meaning we pay attention to how everyday users experience public space and what makes a place feel active, welcoming, and worth returning to. This project was commissioned by college administrators as the sole client. Although the study intentionally gathered resident and local partner perspectives, the recommendations are directed to the college as the primary actor with the authority and resources to initiate and sustain changes.

Town–Gown Relationship

Universities and their surrounding communities often develop complex relationships characterized by periods of tension and collaboration. Gavazzi (2022) used the metaphor of a marriage to describe the nature of this partnership, which involves sharing

space, resources, intentionality, and mutual beneficence. Measuring the dimensions of *effort* and *comfort* between the two parties, the town–gown partnership can be characterized in four different categories: *devitalized*, *conflicted*, *traditional*, and *harmonious*.

Conflicted examples have existed as early as medieval Europe, when universities attempted to protect their students against the “temptations of city life” by isolating themselves from the surrounding community (Brockliss, 2000, p. 165). Over time in the United States, however, off-campus housing expanded due to enrollment booms and universities’ insufficient infrastructure to house students (Rousmaniere, 2021). This development has consistently infused American neighborhoods with activity and revenue, but also potential disruption. Institutions and towns seeking the optimal harmonious relationship identify and establish programs that require significant effort and undergird high levels of comfort between the parties (Curme et al., 2022; Gavazzi, 2022). *Harmonious* relationships tend to have unique characteristics, including open communication and an environment where universities and communities can learn from each other to regularly seek balance in expectations and outcomes (Suarez-Balcazar et al., 2004; Zvonkovic et al., 2025).

The College of Wooster’s existence is directly linked to local investment; it was underwritten in the mid-19th century by prominent Wooster citizens who answered the call from the Ohio Presbyterian Synods for a university in the region and donated the land and funds for initial construction (Wooster Digital History Project, 2024). Collaboration between townspeople and the college has evolved over 170 years based on changes at the college, the city, and global events of social upheaval, war, and economic crises (Footlick, 2015).

In 2023, an administrator within the College of Wooster’s Center for Diversity and Inclusion, now the Center for Belonging & Intercultural Dialogue, advocated for more engaging, positive interactions between members of the campus and city communities. Though the two parties (students and local community members) share a history of mutual dependence and camaraderie, this administrator noted several examples of a growing challenge, such as a decrease in student engagement off-campus since the COVID-19 pandemic, fewer local community members visiting open campus

spaces, and a rise in incidents of hostility between students and community members. The administrator decided to hire an AMRE (Applied Methods and Research Experience) team to research the issue and detail initiatives the college could undertake to promote more positive interactions between campus and community members. If interpreted using Gavazzi's (2022) terms from the "campus–community as marriage" model, this administrator was describing an assumed lack of intentionality in attending to what most campuses experience, which is a *traditional* "low effort and high comfort" relationship between the town and campus. In stating anxieties about such a relationship turning *devitalized* (low effort and low comfort) due to a lack of intentional action, the AMRE team quickly identified that a more *harmonious* relationship, or something of high effort and high comfort, in Gavazzi's terms, would be possible only if the underpinning of the research and the conclusions included community member value and participation. To ground these efforts in a spatial and community-centered perspective, the research team turned to placemaking as a theoretical framework, allowing for a more nuanced interpretation of community perspectives and the development of actionable strategies.

Placemaking as a Guiding Concept and Process

Placemaking is a multifaceted and evolving concept that focuses on transforming spaces into meaningful places through collaborative and community-focused efforts. Although seemingly straightforward, placemaking has been approached from various disciplinary perspectives, resulting in diverse definitions and theoretical frameworks. Strydom et al. (2018) emphasized this diversity, systematically illustrating how placemaking has grown and adapted within the field of spatial planning and beyond. Drawing from disciplines such as urban design and urban planning, social sciences, arts, education, and design (Alvarez et al., 2017; Keidar et al., 2023; Lew, 2017; D. Thomas, 2016), placemaking addresses the interplay between physical spaces and their social, cultural, and economic dimensions. At its heart, placemaking involves reimagining spaces to enhance their functionality, identity, and emotional connection for the people who use them (Beza, 2016; Boeri, 2017; Breek et al., 2020). This process is inherently collaborative, engaging

individuals, groups, and organizations to envision and shape spaces that reflect their needs, values, and aspirations (Meetiagoda et al., 2023; Montgomery, 2016). Activities such as renovation, maintenance, and creative redesign often form part of these efforts, which aim to cultivate spaces that feel unique (Eckenwiler, 2016). Uniqueness in this context is derived from site-specific characteristics like community-driven art, historical elements, and opportunities for social interaction, all of which contribute to a place's identity (Jarratt et al., 2019; Thomas et al., 2015).

Historically, placemaking developed as a response to the negative effects of urban sprawl on community life. Pioneers such as Jane Jacobs and William Whyte played a critical role in shaping the concept's foundational principles. Jacobs's (1961) *The Death and Life of Great American Cities* demonstrated how small-scale, human-centered changes could breathe new life into urban neighborhoods by contributing to social connections and activity. Similarly, Whyte's (1989) studies on urban liveliness highlighted the importance of designing public spaces with human behavior in mind. These early contributions continue to influence contemporary placemaking, which prioritizes human connection and social engagement alongside physical design. Over time, placemaking has shifted from being a top-down process driven by experts and policymakers (Day, 1992; O'Brien, 1985) to a more inclusive, democratic approach. Today, it often involves collaboration among diverse beneficiaries, including community members, local authorities, and nongovernmental organizations (Bisani et al., 2022; Schneekloth & Shibley, 2000; Toolis, 2017). This participatory model reflects a growing recognition of the importance of diversity in shaping public spaces (Bilandzic & Johnson, 2013; Rios & Watkins, 2015; Vaughan et al., 2021). By engaging multiple perspectives, placemaking addresses social, environmental, and economic challenges while promoting sustainable development and social cohesion (Ellery et al., 2021).

Recent innovative ideas about placemaking, such as creative and tactical approaches, further emphasize its participatory nature. Creative placemaking integrates art into community development, using cultural practices to enrich the social and aesthetic value of spaces (Ellery et al., 2021; Matthews & Gadaloff, 2022). Tactical placemaking,

inspired by tactical urbanism, focuses on temporary, cost-effective interventions that allow communities to experiment with space usage before committing to permanent changes (Lydon & Garcia, 2015; Project for Public Spaces, 2013; Stagias & Mahmoud, 2024). These efforts often include movable furniture, planters, and other flexible elements to activate spaces and explore their potential for community engagement. Tactical placemaking is particularly relevant for redesigning campus environments. Its iterative nature—testing, observing, and refining—enables campuses to experiment with various approaches before implementing lasting changes. This flexibility is vital for enhancing campus–community interactions, as it allows institutions to adapt to the diverse and evolving needs of students, faculty, and local communities; therefore, campuses can create spaces that not only serve academic purposes but also build meaningful connections with their broader communities.

Different studies have highlighted the relevance of placemaking in college campus design and planning. Adhya (2010) discussed college towns as models for sustainable placemaking, demonstrating how campuses can play a key role in strengthening ties with their communities. Sahramaa (2013) examined how campus design influences a sense of community, proposing a framework for creating environments that support communication, integration, and lasting engagement. O'Rourke and Baldwin (2016) explored the impact of involving students in placemaking efforts, finding that participatory approaches enhance attachment to campus spaces. Ehlenz (2018) analyzed how university investments in surrounding neighborhoods led to meaningful changes, showing the potential for campuses to act as catalysts for local revitalization. Millington (2016) and Verdigué (2021) focused on the broader relationship between campuses and their urban contexts, emphasizing the role of universities in shaping the identity and development of their surrounding areas. Tichavakunda (2024) contributed to this discussion by introducing Black placemaking, offering insights into how marginalized groups redefine campus spaces to create a sense of belonging. These studies illustrate the growing focus on placemaking as a means to improve the quality of campus environments and strengthen connections with the wider community. Placemaking is becoming an increasingly relevant topic for colleges and universities seeking to enhance

both their internal spaces and their role within the urban fabric.

Experiential Learning Approaches

Applied Methods and Research Experience

The Applied Methods and Research Experience (AMRE) is a unique consulting program at the College of Wooster that pairs teams of undergraduate students with faculty and staff advisors to work in the summer on a project for a variety of businesses and organizations. In the 30 years since its inception, AMRE has worked with 74 different clients, ranging in size from Fortune 500 companies to local nonprofits. Over 500 students have participated, and they are now hired from nearly every major at the College of Wooster and partner school Ashesi University in Accra, Ghana. Currently, AMRE employs about 30 to 45 students per summer and seven to 12 advisors for 10 to 12 projects.

The student researchers work for 40 hours a week, 5 days a week, across 7 to 8 weeks in the early months of the summer. As compensation for their efforts, they receive an hourly wage that is competitive with other student summer internship wages. They also participate in professional development workshops, networking meetings, and social events—all intended to build intra-AMRE camaraderie and opportunities to hone professional skills. The students' deliverables to the client vary from developing a human resources website for a United Way chapter's partners to analyzing material flaws in the production of automotive parts. The projects always include a final written report, a presentation to partners, and a series of reflection artifacts that are collected and showcased by the directors of the AMRE program.

In 2024, clients paid \$17,000 for a two-student team and \$22,000 for a three- to four-student team. Nonprofit clients pay a significantly discounted rate that is subsidized by outside philanthropy and College of Wooster alumni. The college hosts the students participating in AMRE on campus, providing space, networking infrastructure, and the opportunity for students to live and eat on campus at a summer rate. Outside the College of Wooster hosting the program, AMRE is cost neutral, as it is based on endowed funds, client fees, and foundational support.

In summer 2023, a College of Wooster administrator proposed an AMRE project to research and recommend ways to improve campus–community interactions. The AMRE program directors invited two faculty members from Wooster—one housed in Urban Studies and the other in Education—to advise the AMRE team of four undergraduate students. Unlike most of the other projects that year, members of the College of Wooster community served as both the client (administrator) and the consultants (students and faculty).

Methodology

To gain context for possible placemaking projects, following a literature review the team carefully examined how other municipalities and organizations successfully implemented placemaking projects. Many of the proposals in the report to the college were inspired by these examples. The AMRE team conducted a mixed–methods approach to collect data informing the recommendations to the client by utilizing four methods: case study analysis, field observation, interviews with the college and community members, and a survey. Each method was used at varying stages of the project.

In addition to our case study analysis of the college and community of Wooster, the AMRE team conducted field observation through several walks around campus to pinpoint areas that could receive prioritized attention. Specifically, they focused on potential opportunity zones and hubs. To deepen understanding of how peer institutions address a town–gown relationship, the AMRE team visited another small college in the region. The team toured the campus to examine the spaces that engage the community and interviewed that institution’s director of student involvement to capture more context on ways that the institution approaches community engagement.

With the goal of incorporating perspectives from both the college and local partners, the AMRE team conducted interviews with 24 stakeholders: 17 College of Wooster employees, four City of Wooster employees, and three leaders of local community organizations. Every interviewed employee of the college was either a longtime community member or regularly interacted with the community as part of their job. The interviews were semistructured; therefore, the AMRE team prepared a set of predetermined open–ended questions to ask all

interviewees, and a set of specific questions tailored to the expertise of the individual respondent. Prior to each interview, the team explained the project and how their responses would be used to the interviewee. Team members took and then shared notes of each interview, building data that would be analyzed for emerging themes to inform recommendations. Interview notes were analyzed through coding: The team extracted recurring codes from the notes and then translated these codes into the themes presented in the Findings section.

With the goal of maximizing residents’ input, the AMRE team also conducted a survey of community members. The College of Wooster is a fully residential campus, so students were not part of the survey pool as local household residents. Prior to launching the survey, the team undertook several steps to ensure reliability. A draft online survey on ArcGIS123 was piloted with a small group of community members. Using feedback from the pilot, the team adjusted the survey. With Canva software, they designed flyers providing a QR code and an online link to the survey, which displayed the research team’s contact information. The team utilized ArcGIS to identify several residential blocks and residences surrounding the college and distributed surveys to over 400 units in the selected blocks. Approximately two weeks after the survey’s initial distribution, the team made it available to the broader community by posting a link on a Wooster community Facebook page. The team chose to follow this course to receive more responses from community members, eventually leading to 79 total participants answering the survey. Because this survey targeted local residents rather than college–affiliated respondents, the quantitative data in this study primarily reflects community perspectives on the campus–community relationship. Survey data (residents only) were analyzed descriptively (frequencies/percentages). The qualitative and quantitative results were integrated through triangulation by comparing survey patterns with interview–derived themes and using areas of alignment to refine and prioritize the final set of themes reported.

Findings

Key Themes

From the analysis of interviews with participants and surveys conducted within the

community, seven key themes emerged as aspirations for strengthening the relationship between the college and the broader community. These themes reflect shared priorities, challenges, and opportunities for fostering meaningful connections and enhancing the campus–community dynamic and include the need for (1) hubs, (2) communication, (3) transportation and accessibility, (4) recreation, (5) collaboration, (6) community-facing events, and (7) safety.

Hubs

A recurring theme in the responses was the need for central, accessible spaces on campus to serve as gathering points for both college and community members. These hubs were envisioned as spaces that facilitate social interactions, provide resources, and serve as informational centers. Respondents emphasized that such spaces, especially with regard to exterior design and landscaping, could act as bridges between the campus and the community, enhancing a sense of inclusion and shared purpose. Whether through existing structures or new developments, creating vibrant, multifunctional hubs was seen as crucial for enhancing interactions and breaking down barriers between the college and its surrounding community.

Communication

Effective communication was highlighted as a cornerstone for improving campus–community relationships. Many respondents expressed a desire for more diverse communication strategies to ensure that all community members were informed about opportunities and events on campus. The research team asked respondents about various programs and events happening on campus, and many had not heard of such events through existing informal channels. Suggestions from the respondents included distributing flyers, creating newsletters, and establishing a dedicated community page on the college's website. These methods aim to address information gaps and create a more transparent and inviting atmosphere for collaboration and participation.

Transportation and Accessibility

Transportation and accessibility were identified as critical factors for fostering stronger campus–community interactions. Respondents emphasized the need to enhance transportation options for students, such as implementing shuttle services with more effective schedules or

introducing bike-sharing programs. This theme emerged due to several challenges: the current shuttle schedule was perceived as inadequate, no functional transportation systems like bike-sharing existed, and the distance between the campus and downtown could be difficult to navigate, particularly during colder seasons.

Recreation

The importance of recreational opportunities as a means of enhancing engagement emerged as another key theme. Respondents highlighted the value of events, activities, and designated recreational spaces as informal yet meaningful platforms for interaction. From organizing sports events to developing accessible green spaces, recreation can serve as a powerful tool for community-building. These efforts could be particularly impactful if recreational spaces were strategically located at campus edges or accessible via the main road that bisects the campus.

Collaboration

The theme of collaboration centered on the college's role in supporting students' involvement in the community through volunteerism, internships, and work opportunities. Respondents underscored the value of partnerships between the college and local organizations, which could facilitate student participation in community projects, events, and initiatives. Increased visibility and presence of students in the broader community were also seen as essential for fostering mutual understanding and cooperation.

Community-Facing Events

The desire for community-friendly events hosted by the college also emerged as a significant theme. Respondents expressed interest in events that would be welcoming and accessible to a diverse audience, allowing community members to feel included and valued. Such events could serve as important platforms for interaction, showcasing the college's commitment to building a stronger relationship with its neighbors.

Safety

Finally, safety was a prominent concern, particularly in relation to students' comfort when engaging with the community. Respondents highlighted the need to address perceptions of safety and ensure that off-campus interactions are positive and secure.

Strategies

The findings also informed the development of four strategic approaches designed to address the identified themes and serve as a foundation for actionable recommendations. The strategies include (1) eventalization, (2) physical modification, (3) place rebranding, and (4) spatial extension. They combine principles of placemaking with the unique opportunities and challenges identified through the research.

Eventalization

The concept of eventalization, derived from the words “event” and “revitalization” (Pløger, 2010; Richards, 2017), emphasizes organizing events with the explicit aim of fostering positive interactions between college and community members. This approach is not about commodifying events but about leveraging them as tools for connection and empowerment. Two primary directions underpin eventalization. First, the institution can evaluate and adapt existing events to make them more engaging and inclusive for the community. Second, based on case studies and research findings, new events can be proposed to encourage interaction and sociability. For example, hosting cultural festivals or community fairs on campus can create opportunities for meaningful engagement and mutual appreciation.

Physical Modification

Physical modification focuses on making tangible changes to the campus’s physical environment to improve functionality, comfort, and accessibility. This strategy aims to transform campus spaces into more inviting and navigable areas that support social interaction and enhance the overall experience for both college and community members. Key initiatives under this approach include redesigning main activity nodes to improve connectivity and pedestrian accessibility. For instance, creating clear pathways, improving lighting, and adding seating areas can make spaces more user-friendly. Furthermore, aesthetic enhancements such as landscaping and public art installations can contribute to the campus’s visual appeal and identity.

Place Rebranding

Place rebranding focuses on reshaping perceptions of campus spaces and initiatives through strategic communication and marketing efforts. This approach seeks to

redefine the college as a community hub and increase awareness of its contributions to the broader community. Initiatives under place rebranding include creating clear and consistent messaging about campus events and opportunities, both online and offline. Developing a strong and welcoming identity for campus spaces can help attract a diverse group of community members and encourage their participation. Using digital platforms like social media and dedicated webpages can enhance outreach efforts and make information more accessible, and by promoting the college as an open and inclusive space, this strategy supports themes such as hubs, communication, collaboration, and community-facing events.

Spatial Extension

The final strategic approach, spatial extension, emphasizes connecting the college with off-campus spaces and encouraging interactions in the broader community. This strategy involves both physical changes and programs aimed at expanding the college’s reach and fostering engagement beyond its boundaries. Spatial extension initiatives include improving transportation options to make off-campus areas more accessible, such as providing shuttles to downtown or creating partnerships with local businesses. Additionally, encouraging students to participate in community events, volunteer opportunities, and internships can deepen their connections with the local community.

Discussion

This study underscores the powerful potential of placemaking as a transformative framework for redefining campus–community relationships. By adopting strategies such as eventalization, physical modification, place rebranding, and spatial extension, campuses can evolve into vibrant, collaborative environments that foster meaningful connections and shared growth. These approaches not only address immediate challenges but also lay the groundwork for sustainable partnerships and inclusive engagement. We wish to reiterate that placemaking is not a separate theory section here; it is simply the language we use to interpret what participants described. In that spirit, the themes below connect directly to basic placemaking ideas about comfort, access, activities, and the social life of public space, and to the practical question of what helps a space feel easy to enter, easy to use, and worth staying in.

Eventalization is one example of placemaking's focus on cultivating sociability and connection. Initiatives like a campus farmers market, concerts featuring both student and community artists, and a composting day are more than just events—they are intentional opportunities to bring people together in shared, low-barrier settings. These shared experiences dissolve the boundaries between campus life and the surrounding community, creating spaces for mutual understanding and collective joy. Eventalization transforms the campus into a place where stories are shared, identities are intertwined, and cultural bridges are built and maintained through “win-win” opportunities for increased social interaction and communication (Gavazzi, 2022). It's about turning fleeting moments into enduring bonds that enrich both the campus and the larger community, especially when the programming is regular and predictable, not one-off.

Physical modification takes placemaking to a tangible level by shaping the everyday feel and function of the space, turning the campus into a set of public places that support both passing through and staying. Projects such as codesigned public art installations and community gardens go beyond enhancing aesthetics; they become invitations to dialogue and collaboration. These spaces encourage a sense of shared belonging, where students, campus employees, and community members can come together to create, reflect, and connect. Such interventions symbolize more than physical improvements; they represent a commitment to openness and a shared ownership of the campus environment, and they work best when paired with the basics: seating, lighting, clear paths, and ongoing care.

Place rebranding focuses on reshaping how the campus is perceived, transforming it into a symbol of opportunity and inclusion. Initiatives like summer academic and music camps reimagine the college as more than just an academic institution—it becomes a welcoming hub of discovery, creativity, and engagement. By amplifying this vision through strategic communication—via social media, targeted outreach, and partnerships—the campus's role as an accessible, inclusive space can be redefined. This is not just about branding; it's about creating a culture where the campus is seen as a vibrant resource that is open and inviting to all, and where people can easily find what is

happening, where to go, and what is open to them.

Spatial extension emphasizes the importance of breaking down physical and psychological barriers between the campus and its surrounding community. Partnerships with local institutions like the local theater and improved transportation options demonstrate how campuses can integrate themselves into the broader cultural and social fabric of their towns and cities. These initiatives foster a sense of shared identity, connecting the campus to the community in ways that are both practical and deeply symbolic. It's a reminder that campuses should not exist in isolation—they should act as gateways to collaboration and mutual enrichment, with better linkages, clearer entrances, and fewer “invisible” boundaries that signal who belongs.

Frameworks that turn campus “edge/wedge” issues (Gavazzi, 2022) into opportunities for positive connection require mutuality and shared planning by champions or “boundary spanners” on campus and in the local community (Zvonkovic et al., 2025). These joint pursuits necessitate not only engaged people, but ongoing research, data collection and analysis, infrastructure, and avoidance of just “solving a problem” (Curme et al., 2022). Such collaborations require those invested to commit to core responsibility and pour effort into making the increased levels of contact more comfortable and harmonious (Gavazzi, 2022). The strategies outlined here illustrate the profound potential of the placemaking principles sociability, comfort, accessibility, and activity to inspire innovation and inclusivity, while also pointing to something simple: People participate when places are welcoming, legible, and convenient. Placemaking reframes the campus not as an isolated enclave but as a dynamic, interconnected ecosystem where students, college employees, and local residents come together to cocreate a shared sense of purpose and belonging. It shifts the narrative from one of mere coexistence to one of active collaboration and harmony, turning campuses into spaces of integration and opportunity, supported by ongoing stewardship rather than a single project.

For the College of Wooster, this vision comes to life through initiatives that transcend traditional academic-community divides. Such initiatives are bridges that connect people through shared goals and values.

Similarly, physical interventions like public art and community gardens transform the campus into a space where collaboration becomes tangible and meaningful, whereas rebranding initiatives redefine the college as a place of possibility, inclusion, and engagement. What sets placemaking apart is its inherent flexibility. It is an iterative process, one that thrives on experimentation, feedback, and refinement, including small adjustments based on what people actually do in the space. This adaptability allows campuses to respond creatively to evolving community needs, turning potential points of tension into opportunities for growth and collaboration. Placemaking is not a rigid framework; it is a dynamic and resilient approach to fostering connection and addressing change. By embracing placemaking, colleges have the opportunity to become beacons of integration—spaces where students and local residents come together to cocreate thriving, inclusive environments that reflect the strengths and aspirations of both worlds, with a clear plan for who maintains, coordinates, and sustains the work over time. Placemaking is not just about transforming campuses; it's about redefining how institutions engage with their communities, paving the way for a future of shared progress and collective impact.

Conclusion

This study addresses the transformative possibilities that placemaking holds for stronger campus–community relations. Through a mixed–methods approach, which included case study analysis, interviews, surveys, and field observation, the research uncovered seven themes—hubs, communication, transportation and accessibility, recreation, collaboration, community–facing events, and safety—that are essential for deepening engagement between the college and the surrounding community. Such themes foreground both the barriers to connection and the possibility of meaningful collaboration, and they show that engagement grows when the campus feels welcoming, easy to navigate, and clearly open to residents.

In short, the study offered four strategic approaches through which the college can respond to these findings: eventalization, physical modification, place rebranding, and spatial extension. These strategies

echo placemaking principles by prioritizing sociability, accessibility, comfort, and activity, and they help support the campus as an integrated, shared space. Events are points of contact for engagement, physical modification can improve everyday usability and comfort, rebranding allows the college's role in the community to be viewed through a wider lens, and spatial extension reinforces that connection does not stop at the campus edge. Across all four approaches, the key is consistency and follow-through, not one-time effort.

The research process itself translated placemaking principles into practice through an integrated and participatory approach beyond the recommendations. Instead of top-down solutions, the team embedded itself with community members, making them partners in diagnosing problems and shaping innovations. Returning to participants with refined ideas, and showing how their input shaped the direction, was part of the work, not an extra step. This kind of reciprocity aligns with Gavazzi (2022) and the shift from passive acknowledgment to active collaboration.

This research was made possible through the AMRE model, which supported time-intensive engagement, iteration, and adaptability. The AMRE team spent 40 hours a week over 7.5 weeks using rapid analysis and refinement, frequent site visits, and real-time feedback loops with community members to propel their efforts on one project. This pace and proximity helped keep the recommendations grounded in what people actually experience in the campus spaces.

In the end, intentionality, commitment, and the continuous willingness to grow and respond to change are foundational to cultivating strong campus–community relationships. These strategies offer practical, actionable steps toward a more inclusive, integrated, and mutually beneficial partnership between the college and local community. If the college treats placemaking as ongoing stewardship, with clear responsibility for coordination and upkeep, the campus can become a shared civic resource rather than a separate institutional world. This study acts as both a model and a call to action, reaffirming that the campus is not simply an adventure in spectating, but a dynamic organism thriving on engagement, interaction, and a collective reimaging of its role in the broader community.



Author Note

Thomas Pitney at time of research was a student and has since graduated from the College of Wooster.

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Building Capacity for STEM Outreach: Development and Implementation of a University Graduate Certificate in Community-Engaged STEM

Erin Purvis Conway and Loretta M. Flanagan-Cato

Abstract

Community-engaged scholarship can improve the impacts of science, technology, engineering, and mathematics (STEM) fields on health care, access to technology, and environmental welfare. Nevertheless, few graduate programs in STEM fields provide training that connects research with engagement with the public. This article describes the development of a graduate certificate in community-engaged STEM. The program includes a graduate service-learning course that partners with an underfunded public high school to offer grade-appropriate lab activities. In addition, students are required to participate in a seminar series, spend significant time working with a community partner, and develop an independent community-based project. The certificate requirements allow trainees to align their community-engaged work with their scientific research projects. These mentored experiences in community-engaged scholarship for graduate students are designed to have multiplicative effects to support local communities, improve campus culture, enhance diversity in STEM fields, and yield more impactful research enterprises.

Keywords: broader impacts, competencies, service-learning, graduate education, community engagement



For several decades, higher education researchers have warned that colleges and universities need to become better aligned with the concerns of our society (Bok, 1990; Delve et al., 1990; Newman, 1985). Newman argued that higher education should support the quest to secure neighborhoods and cities from crime, drug use, and violence, and to protect our environment from waste and exploitation. He proposed that American universities should be preparing their graduates to “see themselves as able to help shape the world in which they must adapt” (p. 49). To accomplish these important educational goals, Boyer (1990, 1996) offered a new vision of faculty work that addresses the diverse and changing needs of society. Boyer proposed that the definition of scholarship should include not only basic research and interdisciplinary communication, but also rigorous public engagement.

This call to arms for American universities to include community-engaged scholarship as part of their educational and scholarly mission has been met with various levels of commitment. Efforts have included service-learning courses, outreach, participatory action research, and public scholarship (Morrison, 2020). Comparisons across universities have led researchers to identify best practices for authentic community-engaged scholarship (Furco, 2010). High-quality community partnerships involve mutually beneficial exchanges of ideas, expertise, and resources (Harkavy, 2023; Holland, 2005). Importantly, these best practices are associated with the most rigorous scholarship (O’Meara, 2005; Wade & Demb, 2009). Best practices are critical, given the risks and harms that can come with scholars not being appropriately prepared to interact with the public (Stofer et al., 2023), including the failure to take power dynamics into account,

inadequate assessment of the engagement outcomes, and superficial and transient connections with community groups. These poor practices can lead to a further loss of public trust in science.

As scholars develop these standards for community-engaged work, it becomes logical to develop a curriculum to convey this knowledge to the next generation of scholars as part of their responsibility to serve the greater good. Indeed, a few universities have recognized that community-engaged scholarship should be incorporated into graduate education and offer graduate certificate programs in community-engaged scholarship (Matthews et al., 2015). Such formalized training programs align with the interest of many graduate students who wish to prepare to address societal challenges (O'Meara, 2008). New models are emerging to incorporate community-engaged scholarship with research opportunities (Keeler et al., 2022). Although this is certainly a positive development, many graduate training programs remain discipline-focused, without attention to public engagement and collaborative problem-solving. If trainees lack access to mentorship and professional development related to community partnerships, they may struggle to effectively translate their disciplinary expertise to societal challenges (Campbell, 2005; Kratochvil et al., 2022; Weerts & Sandmann, 2008).

STEM Context

The motivation to create a university-wide graduate certificate in community-engaged STEM was driven by the confluence of several independent rationales, including the need for society to understand the contributions of STEM discoveries and innovation, the sense of professional obligation among researchers to help educate the public, the strong desire of trainees to participate in this type of community outreach, and the existence of strong community engagement infrastructure at the University of Pennsylvania (Penn). Here we provide a further discussion of each of these considerations and then describe the process of instantiating the certificate program.

Public Buy-in for Impact

In addition to gaining knowledge for knowledge's sake, STEM professionals may discover information that is useful only if society takes appropriate action. For example, citizens often need to understand the

relevant scientific and/or technical knowledge to undertake inconvenient or costly behavioral changes to protect their health and safety or the environment. As recent history has shown, scientifically based policies that defend the public against viral epidemics or substance abuse disorders can be derailed by a misinformed or distrusting society (Allen et al., 2022; Hall et al., 2022; Lupia et al., 2024). Conversely, through well-developed communication, the broader community can inform STEM professionals about the problems that deserve more intense research and discovery (Holzer et al., 2014). Taken together, STEM professionals need effective community-engaged scholarship to increase the relevance and impact of science and to better serve society's needs.

Professional Obligation

STEM professionals enjoy the unique privilege of focusing on their creative interests and areas of curiosity, and such privileges are generally funded by governmental and philanthropic agencies (Bridgman, 1947; Koepsell, 2010). In return, tax-paying citizens can reasonably expect that scientific advances will be shared with them in an understandable format. In this way, accessible STEM communication is critical for the public's trust in and understanding of science and technology and their willingness to continue supporting these enterprises (Lupia et al., 2024). Given the obligation that STEM professionals owe society, STEM training should include opportunities for trainees to develop the competencies needed to communicate with the public in a responsible and ethical manner.

Trainee Interest

An equally important consideration for creating a community-engaged STEM graduate certificate was the strong desire among the younger generation of STEM professionals for community-engaged scholarship training and opportunities. In a previous report, STEM graduate students emphasized how engagement fulfilled a sense of personal identity and commitment to serve (Reddick et al., 2018). Given the value of community-engaged work for STEM professionals, graduate students can benefit from learning the relevant best practices, which they can incorporate into their professional journey. At the same time, training the next generation of STEM scientists to value and participate in community-engaged scholarship is likely

to strengthen the impact of a university's STEM-related research activities.

Ongoing Activities and Capacity

Before the Community-Engaged STEM Certificate Program was established, many Penn faculty and students were already engaged in work that connects Penn's multidisciplinary STEM research endeavors with the local Philadelphia community. Several educational outreach programs had been created, such as the Educational Pipeline Program (Hamilton et al., 2007), DrosophilA (Laws et al., 2023), and Project BioEYES (Shuda et al., 2019). A variety of community-engaged scholarship initiatives have been led by graduate students. For example, students in the neuroscience graduate program have created an organization called Graduate-Led Initiatives and Activities (GLIA) that offers elementary school programs and high school tutoring. Similarly, students in the pharmacology graduate program have created an organization called Pharmacology Graduate Opportunities for Outreach and Development (Pharm4GOOD) to engage with the local community, particularly underrepresented populations. These established initiatives demonstrate the existing interest of STEM graduate students to regularly participate in engagement work. The new Graduate Certificate Program in Community-Engaged STEM aims to improve the quality of these initiatives while providing formalized academic acknowledgment for student participation in this work. Such academic credit will meaningfully support students who are interested in pursuing community-engaged work in their future careers.

In summary, the need for public engagement for impact, the sense of professional obligation, the strong interest of trainees, and the robust existing programs were major motivating factors that led to the development of the program described here. The concept for this certificate was developed by a Penn faculty member (L.M.F.-C.) and Penn graduate student (E.M.P.C.) as part of a funded fellowship, the Provost Graduate Academic Engagement Fellowship at the Netter Center. The proposal was enthusiastically supported by academic leaders in Penn's Perelman School of Medicine, School of Arts & Sciences, and Provost's Office, with the overall goal of providing interested students with a broad academic perspective for how community-engaged scholarship both enhances the quality of STEM research and

serves the broader community, as further described below.

Process of Creating a New Certificate

With the above motivations in mind, the Community-Engaged STEM Certificate Program was launched with a core group of faculty willing to support the initiative. Faculty across Penn's graduate and professional schools with sustained involvement in community-engaged scholarship were included in the planning stages. Professors from the Perelman School of Medicine, School of Arts & Sciences, Annenberg School of Communication, School of Dental Medicine, School of Nursing, School of Engineering & Applied Sciences, School of Veterinary Medicine, and the Vice Provost for Education endorsed and expressed commitment to the creation of a community-engaged STEM certificate program. To expedite its launch, the Perelman School of Medicine and the School of Arts & Sciences agreed to administratively cosponsor the certificate. A core group of nine Penn faculty members from these two schools readily agreed to serve on a Faculty Advisory Board to oversee the program and advise students. The Biomedical Graduate Studies Program provided critical administrative support to oversee the program's logistics, such as course rostering, room reservations, website maintenance, and transcript documentation. Plans are under way to expand the certificate's availability to graduate students in the Annenberg School of Communication, School of Dental Medicine, School of Nursing, School of Engineering & Applied Sciences, and the School of Veterinary Medicine. With the broad array of STEM specialties being represented, the certificate is designed to be flexible enough to suit the interests and expertise of students from these diverse programs.

The process of creating the certificate was accelerated by the strong support from various stakeholders within the professoriate and administration, although there were a few sticking points. It was challenging to design a single, cohesive program that would be accessible to graduate students across various Penn schools. Given that completion of the certificate may involve students taking courses in different schools within the university, a potential barrier was the difference in tuition rates across schools. This problem was overcome by schools with higher tuition rates agreeing not to

charge the higher rate to students from other schools for taking certificate courses. Another challenge pertains to the goal of having a shared seminar series to allow students across schools to develop a sense of community within the certificate. This goal was hampered by the intensive course and clinic schedules in certain professional doctoral programs, causing difficulty in finding a seminar time that was accessible to all students across various programs. To address this challenge, we decided to allow students from these schools to mainly attend community-relevant seminars within their own programs, with limited attendance to the certificate-sponsored seminar. In the main, stakeholders were willing to compromise and be flexible to create a certificate that would be accessible to as many students as possible.

It is worth noting that a variety of graduate certificates that pertain to STEM-related disciplines, such as medical physics and biomedical informatics, were already on offer at Penn. The new certificate is unique because it connects STEM specialties with the needs of society, offering students direct engagement with the local community. Trainees in this certificate may serve as ambassadors of STEM career pathways, improving educational opportunities and a sense of belongingness for members of the broader community. To our knowledge this is the first community-engaged scholarship certificate program designed to accompany doctoral training for students in STEM fields.

Details of the Program

The Required ABCS Graduate Course

A valuable catalyst for advancing community-engaged scholarship at Penn is the Netter Center for Community Partnerships. The Netter Center brings together people and assets from both the university and the wider community to collaboratively solve problems, such as poverty, health inequities, environmental sustainability, and disparities in education. One mechanism facilitated by the Netter Center is the academically based community service (ABCS) course, which integrates service with research, teaching, and learning. In this way, ABCS courses can combine academic expertise with the expertise of the community to create mutually beneficial, mutually transformative partnerships. This collaborative problem-solving pedagogical approach aims to improve the quality of both life and learning

in the community and add to the impactful scholarship of the university. Research on similar service-learning courses has demonstrated several positive outcomes for students, including improving students' sense of self-efficacy (Reeb et al., 2010), their understanding of social issues (Eyler et al., 1997), and their socioemotional well-being (Flanagan-Cato et al., 2023). Despite the many documented benefits of service-learning (Weigert, 1998), these courses are rarely part of a STEM graduate curriculum. With the possibilities of ABCS courses in mind, and the broad participation of STEM graduate students in extracurricular community activities, a key component of the new certificate is a graduate ABCS course that provides a foundational experience in community-engaged STEM.

The new graduate student ABCS course that was created as part of the Community-Engaged STEM Certificate Program is titled Research & Community: Biomedical Research in the Urban Curriculum. The course has two major goals. First, the course is an opportunity for STEM doctoral students to develop their science communication skills and share their enthusiasm for STEM with students at a nearby public school. Many Philadelphia public schools have inadequate resources to offer grade-appropriate lab activities, leaving students disadvantaged in their access to a STEM education. The graduate students in this course create and conduct engaging, hands-on science lessons to increase high school students' knowledge in science and interest in STEM-related careers. The second goal of the course is to improve awareness about the conditions of urban public schools, particularly in Philadelphia. The course includes critical readings and small group discussions about the historical role of science in underrepresented communities, the connection between students' biomedical research at Penn and the local Philadelphia community, and opportunities to increase science-oriented engagement throughout their doctoral training. In short, the course provides mentored experience in community-engaged STEM and a rigorous understanding of inequalities in STEM education.

This course was first offered during the Spring 2023 semester and continues to be offered annually. Seven graduate students from three different graduate programs (Bioengineering, Neuroscience, and Cellular and Molecular Biology) enrolled

in the inaugural semester of the course. At the end of the semester, graduate students reported feeling better equipped to communicate with community partners and were more interested in integrating community concerns into their future research programs and careers. Participating graduate students provided the following representative reflections of the course as part of their assignments:

This course has truly re-shaped my understanding of community-engaged science. I used to think that occasional volunteering and outreach could be sufficient to foster relationships within my community. I am now very sure that I want to pursue a career that focuses on community outreach. As a female scientist from an under-represented background, this course has inspired me to do more for my peers and the community around me. (Student 1)

After taking this class, I realize that incorporating community-engaged scholarship into my research on [tendon] reconstruction could lead to better patient outcomes. With community needs and concerns in mind, researchers can develop more effective interventions and better support patients during their recovery. We need more people trained to solve real-world problems, and this class has helped me to better understand how I can make a positive impact. (Student 2)

Overall, students left the course with greater knowledge about the importance of engagement work both within academia and in the community, practical skills for responsible engagement, and desire to continue this work. To date, three students from the course have enrolled in the certificate program. Thus, the course is providing a strong experiential and academic foundation for students interested in the certificate.

Other Certificate Requirements

The Graduate Certificate in Community-Engaged STEM complements a student's disciplinary training in four parts: coursework, a research seminar, mentored community-engaged scholarship experiences, and a capstone project. This curriculum is overseen by members of the Faculty Advisory

Board, who are committed to the quality of the program's requirements and mentoring students in the program. Designed to encourage community-engaged scholarship for all interested STEM graduate students at Penn, the program has built-in flexibility to accommodate the various requirements of students' main degrees. The coursework component includes two graduate-level ABCS courses and one asynchronous online course. The two required ABCS courses are the Research & Community course, described above, and an elective ABCS course. The elective course allows students to individualize their learning and tailor the certificate to their own research and academic interests. Elective course options include courses with a focus on education, public health, design, technology, and engineering. As ABCS courses, all elective options involve mentored interactions with the local community.

The asynchronous course, the Penn Experience, was created by Penn's School for Social Policy & Practice and the School of Dental Medicine with the objective of facilitating conversations about race, racism, and Penn's connection with the local neighborhood. The course uses various forms of literature and media to provide a strong foundation in the history of Penn's relationship with Philadelphia's neighborhoods, raising awareness of institutional racism and the consequences of Penn's real estate encroachment on the community. In addition, the course offers perspectives on best practices for greater engagement and inclusion in Penn's various academic, clinical, and social activities. By including this course in the certificate's requirements, the program can ensure that enrolled students can engage with the community with an appropriate sensitivity to possible tensions, as well as a strong sense of the expertise of community members.

The monthly research seminar is led by the certificate's Faculty Advisory Board. Each seminar highlights an example of an existing community-engaged project, including how it was developed and how it serves its community partners. The specific topics can vary from year to year, depending on the interests of the students involved in the certificate program. In addition to giving students an appreciation for the plethora of community-engaged scholarship opportunities, the seminar serves as a shared experience, building fellowship among the

certificate students. The seminars are also an opportunity for students to develop, hone, and share their ideas for community-engaged scholarship projects. The seminar presentations include instruction on best practices in community-engaged scholarship, social determinants of health, and education inequities.

Regarding mentored community-engaged scholarship, students must complete 40 hours of sustained, STEM-related engagement with members of the public. The goal of this requirement is to support students' development and competency in participating in long-lasting community partnerships to fulfill community needs. The requirement of 40 hours of involvement with a particular community partner is intended to promote a meaningful relationship with the community partner and be feasible to accomplish within a semester by committing approximately 3 hours per week. The certificate program website (<https://www.med.upenn.edu/cescp>) describes an array of ongoing engagement opportunities that are open to student participation. The engagement opportunities are overseen by members of the Faculty Advisory Board to ensure that students are cultivating and implementing responsible and ethical community-engaged scholarship practices. As the final requirement, students must create an independent capstone project based on their community-engaged experiences. The capstone project can take the form of a scholarly work, such as a research paper; a presentation at a professional conference; or STEM-based resources for the community. Each year, a special session of the seminar series is dedicated to students presenting their capstone projects.

Taken together, the coursework, seminar series, and community-engaged scholarship experiences allow students in the Community-Engaged STEM Certificate Program to be informed practitioners of community-engaged STEM projects. These activities also are designed to build a coterie of students and faculty who share a commitment to community-engaged scholarship, regardless of their STEM discipline. Importantly, students are encouraged to align their unique research expertise with a need in society. To ensure that the certificate is attainable for doctoral students, each component of the curriculum can be undertaken at any point during their main program of study. Although completion of

the certificate is possible within 2 years, there are no time limits within the duration of students' doctoral program.

Competencies Developed in the Certificate Requirements

The Graduate Certificate Program in Community-Engaged Scholarship at Michigan State University includes a useful framework of competencies to be developed in students aspiring to conduct community-engaged work (Doberneck et al., 2017). Following that example, the Graduate Certificate of Community-Engaged STEM is designed to provide training for each of these competencies. As shown in Table 1, each of the eight competencies is emphasized in at least one, but usually several, components of Penn's Community-Engaged STEM Certificate Program.

Measuring the Impact

The Inaugural Year

The certificate program went from conception to implementation in approximately 20 months, enrolling graduate students in the Perelman School of Medicine and School of Arts & Sciences in Fall 2023. The monthly seminar series began in September 2023 with an overview of the program's goals and requirements. Subsequent seminars featured presentations from members of the Faculty Advisory Board or the community liaisons, focusing on the broad array of community-engaged work happening at Penn. For example, the January seminar focused on various child advocacy programs. The February seminar then featured a discussion of programs that address the social determinants of health. Approximately 15 students participated in the seminar series during the first year, largely from the Biomedical Graduate Studies doctoral program. In addition, several students have completed the asynchronous Penn Experience course.

During the first year of implementing the program, additional STEM-relevant engagement opportunities came to light, and we expanded the options available to students to fulfill the certificate's requirements. The certificate website includes a form for students to submit suggestions of new or ongoing engagement opportunities to continue to build this database. As our network of Penn faculty, staff, and students interested in this work grows, the website will serve as a repository and networking

Table 1. Competencies Developed in the Community-Engaged STEM Certificate Program

Competency	The Penn Experience virtual course	Foundational ABCS course	Monthly seminar	Mentored community engagement	Capstone project
Foundations: understanding of history and variations in CES	X	X	X		
Partnerships: initiating, sustaining, techniques for collaboration		X		X	
Criticality: reflection, ethics, engaging with diversity	X	X			X
Scholarship: research, teaching, service/practice		X	X		X
Perspectives: Asset-based, capacity building, systems approaches	X	X	X	X	
Evaluation/Assessment: peer review					X
Communication: public and academic audiences		X		X	X
Careers: Accomplishments, career span			X		X

site. Now that the Graduate Certificate in Community-Engaged STEM has been established in the School of Medicine and the School of Arts & Sciences, additional work is needed to tailor the program to other STEM-related schools at Penn.

Several layers of program evaluation have been established to ensure the success of students in the Community-Engaged STEM Certificate Program. In terms of student evaluation, the enrolled students are tracked for their progress as community-engaged scholars. Their engagement work is mentored by a member of the Faculty Advisory Committee. Faculty advisors complete a performance evaluation form for their mentees in the middle and at the end of a student's community-engaged scholarship project. The evaluation form tracks several metrics of the student's performance, including commitment, demonstration of best practices, prioritizing the needs of the community, and adapting based on experience. The advisor also gathers feedback from community partners. Based on this

documentation, students are given feedback and recommendations for improvement.

A second layer of evaluation assesses how the certificate program affects the students' career trajectories and future community-engaged scholarship activities. At 2-year intervals, we will contact former certificate students to catalogue their current employment position (research, teaching, etc.) and the extent to which they include community-engaged scholarship in their professional activities. This biannual time series may provide the basis for a study on how graduate-level community engagement training is associated with later career activities. We also hope that certificate alumni will provide a professional network to further advise the program.

In addition to evaluating students' progress in the certificate program and their subsequent career paths, the Community-Engaged STEM Certificate Program itself will undergo regular internal reviews. The program has created a Student Advisory

Board consisting of graduate students who are currently enrolled in the program. These students will serve on the Advisory Board for one year. The Student Advisory Board meets twice yearly to provide constructive feedback on the program, including whether the requirements are achievable and accessible to a wide population of students, the prevalence and availability of certificate faculty advisors, the relevance of seminar topics, and the availability of engagement opportunities that align with student career and research interests. In addition, the Faculty Advisory Board meets annually to determine and implement improvements to the program. Faculty meetings will include a consideration of the feedback from community partners, which will be gathered from all community partners that participate in the program.

No community advisory board has been created for the certificate program at this time. Rather, community advisory boards exist for the various programs that the graduate students may participate in, such as programs overseen by the Netter Center. Therefore, we will take advantage of the current community advisory boards to gather input regarding feedback, concerns, and suggestions about the certificate program. Although a formal study may be feasible in the future, no plans are under way to document the impact of the certificate program on community partners. A guiding principle of these review processes will be to continually improve relevant competencies in the students and continually ensure that the student–community partnerships within the program are best serving the needs of the community. We will also consider how and when to expand the program to other STEM-related schools within Penn. As an ultimate layer of evaluation, the program will also seek an external review after 5 years, requesting input from scholars involved in similar programs at peer universities.

The school partners have expressed broad appreciation for previous and ongoing academic supports that Penn students bring to schools; however, any expansion in programming is based on the potential benefits perceived by the schools' administration and staff. To the extent that graduate students increase Penn's capacity to support these local schools, there is room to increase Penn's footprint. Nevertheless, any increase in Penn student involvement often requires additional coordination, such as identifying

partner classrooms, aligning time slots, finding appropriate space, and supporting the curriculum. It is critical that such complications do not add to the workload of the public schools' teachers and staff. Awareness of these obstacles and the relevant problem-solving skills is an important learning experience for graduate students participating in the program.

Next Steps

This certificate program has been well received by graduate students and the university, and we expect participation to grow over time. By uniting students across the broad spectrum of STEM fields, the program has the potential to be an interdisciplinary thought incubator, innovating Penn's collaborations with the local community. As graduate students contribute to novel programming in community-engaged STEM, we encourage the participating graduate programs to consider incorporating a student's independent community-engaged scholarship innovations into their dissertation work. We are in the process of developing an annual Spring symposium to showcase certificate student engagement projects and promote further interest in engagement work.

Broader Goals

Graduate programming in community-engaged STEM relates to two urgent issues in STEM fields: the social obligation to proactively include the public in our scholarly endeavors and the need to improve representation in STEM fields. Regarding public access, the STEM community is mainly incentivized by grants and publications, and these systems are not always designed to hold STEM professionals accountable for their direct contribution to the stakeholders in their communities. Nevertheless, the culture of STEM professions has increasingly embraced the value of broadening participation, which includes better engagement with the public to decide what research questions matter and to disseminate the knowledge generated through research. Universities can exercise leadership by establishing new incentives for democratizing science, which in turn would likely produce better science. We propose that the creation of educational programs, such as the certificate described here, can represent a bold investment, signaling the scholarly value that a university places on community-engaged STEM. Such

academic leadership can have multiplier effects, including nudging STEM professionals to increase their community involvement; inspiring trainees to develop best practices of community work in their careers; and improving the education, health, and economic outcomes of their local communities. We will monitor whether such programming has these desired effects by documenting faculty participation in community-facing programs; graduate student participation in the training; and available local educational, health, and economic indicators.

Regarding the need to improve representation in STEM fields, Vannevar Bush (1945) famously noted that science would be at its highest quality if “ability, not the circumstances of family fortune, is made to determine who shall receive higher education in science” (p. 1427). In the more than 80 years since that statement, STEM fields remain insufficiently diverse. Well-known barriers for underrepresented students to enter STEM fields include insufficient pre-college preparation, campus climate, debt disparities, and a lack of faculty diversity. A university initiative to promote graduate education in community-engaged STEM is not a magic bullet to resolve these hurdles. However, it may mitigate these issues to some extent with upstream effects on improved STEM literacy in local communities, improved sense of belongingness on campuses by demonstrating a commitment to diverse communities, and the appeal of academic positions in STEM fields to people of diverse backgrounds by aligning STEM endeavors with an interest in their groups’ well-being. Although this work is not immediately planned, possible metrics to assess these outcomes could include local school standardized testing, the number of underrepresented graduate students joining STEM programs, and successful recruitment and retention of faculty from underrepresented groups in STEM fields. In this way, university leadership’s support of community-engaged STEM scholarship may help the university attain a more robust STEM research enterprise. Indeed, community-engaged scholarship can both reflect and improve intellectual merit, and thus the university commitment to community-engaged STEM education can be a vehicle to meet multiple goals.

We recognize that other higher education institutions will differ in the motivations and constraints that may affect their

ability to develop an educational program for graduate students to gain professional experience in community engagement. The creation of Penn’s certificate program was facilitated by preexisting community relationships, the complementarity of the local educational needs and Penn graduate students’ teaching capacity, and the university administration’s commitment to community partnerships. Conversely, universities without sufficient preexisting community engagement programs available to graduate students or lacking a community-engagement culture on campus may face challenges in developing a curriculum for such a program. Similarly, dissertation mentors may discourage students from spending time on something not strictly part of their dissertation. In addition, researchers and administrators who do not engage in community-engaged projects may not recognize the importance of training for community engagement. In some cases, graduate deans may be resistant to creating new credentials. Therefore, we propose that useful steps toward building a program of this type would likely include strengthening the infrastructure to connect graduate students with meaningful community partnerships, defining a broad community need that aligns with available graduate student skills, and gaining the support of relevant university curriculum leaders.

Conclusions

Research universities have worked to better integrate their work with community concerns to retain social relevance. Penn’s certificate program may offer a useful framework for a next step in formalizing a university’s commitment to community-engaged STEM within graduate education. In our experience, the concept of this certificate has broad appeal with various university constituents, allowing it to be created and implemented within a short time. The certificate curriculum required the creation of a few new components, namely the seminar series and a required course, but some courses and many community-engaged scholarship opportunities already existed. Therefore, it seems likely that some research universities may be well positioned to craft a similar educational opportunity for STEM graduate students. Through such programs, we can look forward to a new generation of STEM researchers who are well equipped to add value to their work by meaningfully engaging with their local communities.



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