



# A framework for addressing the lack of diversity in the Geosciences through evaluating the current structure of institutional efforts

Aída Guhlincozzi · Julia Cisneros

Accepted: 7 April 2021

© This is a U.S. government work and not under copyright protection in the U.S.; foreign copyright protection may apply 2021

**Abstract** How can universities build institutional partnerships through supporting community geography projects? This paper details the case of university members seeking to achieve a community goal of expanding Geosciences education opportunities, while also targeting a long-range goal of improving diversity within the university Geosciences. Over the course of one year, two Ph.D students collaborated with community members affiliated with a local middle school to design and organize the School of Earth, Society, and Environment (SESE) Geosciences Camp for Middle School Girls, held in August 2019. This paper deconstructs and critiques the camp organizing process and its outcomes. The conclusion addresses what worked and what did not as a model for future attempts at more sustainable institutional partnerships serving community geography projects.

**Keywords** Community geography · Geosciences · Diversity, equity, and inclusion · Community-university partnerships · Neoliberal university

## Introduction

When community geography scholars refer to a “community” and a “university,” they are engaging a constructed dichotomy of who is the university and who is the community. This paper critically analyzes the conceptualization of the community and the university as separate entities through a case study of the development and implementation of the SESE Geosciences Camp for Middle School Girls. The overall goal of the camp was to stimulate interest and awareness of the Geosciences among girls from low-income and underrepresented racial/ethnic groups. The camp was initiated when members of a university—the University of Illinois Urbana-Champaign (UIUC)—approached members of a local middle school based in the community—Franklin STEAM Academy’s (Franklin) students, teachers, and family members—and proposed a geoscience education camp. Together, these participants co-organized and facilitated a camp to meet the needs of the specific community. Franklin lacked resources for providing education and training in the Geosciences (including: Atmospheric Sciences, Environmental Science, Geography, and Geology), and to support career paths in the Geosciences. As Latina PhD students in the Geosciences at the university, we approached this community and co-designed a camp speaking to community needs matching the goals of the university participants. Reflecting on these experiences, this paper deconstructs the preparation, introduction,

---

A. Guhlincozzi (✉)  
Department of Geography and GIScience, University of Illinois Urbana-Champaign, Urbana, IL, USA  
e-mail: guhlin2@illinois.edu

J. Cisneros  
Department of Geology, University of Illinois Urbana-Champaign, Urbana, IL, USA  
e-mail: jcisnrs2@illinois.edu

design, and coordination of the camp as a community geography project, to aid development of future community-university partnerships.

This paper identifies the development and the implementation of the camp as a community geography project addressing the lack of diversity in the Geosciences. As a community geography project, the collaboration between the community and the two graduate students to organize a camp was an attempt not only to foster education and interest in the Geosciences among students from underrepresented communities, but also to create disruptive change within the university to support such efforts. Through community interaction and collaboration, the development of the camp was meant to lay the groundwork of how to continue hosting similar camps within the university while building ties with the local community. Many existing approaches to community outreach by universities rely on single event opportunities that students need to seek out on their own. In contrast, our approach emphasized active recruitment of students via a collaborative community-university partnership with a school that serves low-income students and students of color. Further the camp was an attempt to address the lack of diversity in the Geosciences. With the focus on recruiting and supporting students of color, the camp was meant to help diversify the future student body in the Geosciences by engendering interest at an early age and by bringing students into the university's intellectual communities. In this way, our goal was to disrupt existing approaches to establishing community partnerships and promote different epistemological orientations in the fields of Geography, Geology and other Geosciences, while contributing to the larger project of community geography.

Creating the camp required organization, collaboration, and support from and communications between multiple actors, including public schools, the university, families, and teaching organizations. This paper discusses the necessary steps to connect, work, and communicate with the institutions and institution members who became major figures in camp creation. We describe these steps and analyze where breakdown within the university occurred, leading to a failed attempt to develop a sustainable institutional partnership. We also reflect critically on our status as both the

main organizers of the camp and graduate students and how that status, due to power differences, hampered efforts to establish the partnership. In the final section, we discuss what conditions could have led to a successful institutional partnership and suggest who should foster these conditions.

Using the Geosciences Camp as a case study, this paper seeks to address the following broad questions about creating similar outreach programs at academic institutions from a community geography perspective:

- What are the opportunities and challenges of university-community partnerships?
- How are institutional partnerships established to focus on recruited students' interests, needs, and opportunities?
- In the neoliberal structure of research-focused universities, whose "job" is it to establish these partnerships, and does the current model of the university support such partnerships?

To answer these questions, we present a three-part analysis: (1) a discussion of the design, creation, and collaborations that were successful in the creation of the camp, (2) identifying where and how in the process the attempt at the institutional partnership failed, and (3) using the failed experience to identify a potential model for successful institutional partnerships.

Our analysis supports a methodology for forging institutional partnerships through the creation of camps that serve diverse communities and are built on community geography guidelines that attempt to disrupt existing inequalities in power and authority. We critically evaluate the case of the Geosciences camp, identify successes and failures, and suggest a model for successful partnerships. The article is framed entirely from our perspectives as university graduate students at the time of camp's founding. While recognizing that we, as graduate research fellows, are participants in the structure of the university, we differentiate our efforts from those of other stakeholders from the university who we refer to in the paper as "university participants." For example, as a group, "university participants" includes administrators, faculty, directors, and deans. The conclusions display the potential for future creations of long-term institutional partnerships of a similar nature.

## Literature review

### Community geography

Community geography literature describes civic engagement as geographic praxis. This focus justifies community geography research as a valuable pedagogical and social change tool (Block et al., 2018; Hawthorne & Jarrett, 2018). With civic engagement, community geographers have drawn on geographic theory advocating for social justice and serving a “common good,” including David Harvey’s geography call to action (Block et al., 2018). Central to these efforts is the need for “socially relevant” academic work in service of communities and creating institutional partnerships based on trust, respect, inclusion, and listening (Rees, 2013; Robinson et al., 2017).

Most community geography literature emphasizes civic engagement’s importance in accomplishing the geographic call to service. Many of the documented studies carrying out community geographic work highlight listening to community groups; following their guidance, insight, and needs in research question development; and providing support in the research, development of tools, and analysis methodology (Boll-Bosse & Hankins, 2018; Rees, 2013; Rees & Becker, 2012).

Partnering with communities, especially through projects guiding and supporting students, requires clear goals, values, and methods (Robinson, 2010; Robinson & Hawthorne, 2018). Robinson (2010) discusses the Syracuse Community Geographer’s success through the lens of reflecting values that “enable more resources to be made available to the community,” which are neutrality, autonomy, authority, and flexibility.

Robinson et al. (2017) expanded on the community geography values as facing the power structures that prevent under-resourced communities from dealing with local issues. By connecting local organizations with geographic methods that are technological, interdisciplinary, and/or qualitative, power structures can be addressed. Community geography goals particularly salient to this paper include: “creating reciprocal relationships between university and community partners” and the negotiation of “collaborative knowledge production and shared power,” goals Block et al. (2018) echoes in the call for “democratization of knowledge production” (Block et al., 2018;

Robinson et al., 2017). These goals aim to help communities confront unequal power structures. There are also clear benefits to community-university partnerships, such as how community members who “have been systemically marginalized ... can widen” the knowledge university researchers have, and improve community access to the research (Lopez, 2020).

Challenges identified with community-university partnerships include faculty members lacking support for the increased course loads and administrative responsibilities. Without a supportive work environment, faculty are less capable and interested in creating community geography partnerships and projects (Block et al., 2018). Lopez (2020) noted university growth can lead to displacement of long-time residents and be the cause of environmental issues, inhibiting trust (Lopez, 2020). Community geography, similarly to participatory geographies, clearly have “explicit internal politics, in efforts ‘destabiliz[ing] academic-as-expert’.” Research with communities also can take a lot of time that does not meet the schedule of the university research agenda (Fudge Schormans et al., 2019).

Some guidelines to community geography projects do incorporate expectations for institutional partnerships: a commitment to “sustained and reciprocal relationships between researchers and community partners,” and the researchers using “assets of the university or research institution to bridge the spatial and technological divide between academia and under-resourced community partners.” (Ehrman-Solberg et al., 2020; Hawthorne & Jarrett, 2018). One example of creating structures to support institutional partnerships includes the establishment of a “Vice President for Public Engagement” at the University of Minnesota. Community geography research projects should have shared interests, shared goals, and shared activities. Successful institutional partnerships also require strong relationships, demanding an expectation of faculty managing the project, because of their potential for long-term investment (Ehrman-Solberg et al., 2020). Malone (2020) further speaks to the difficulty of early career academics in performing community/participatory research because of their precarious status and a lack of support for “slower timelines, increased uncertainty, and general evolutionary nature of participatory work.” The pressure that researchers and universities feel to provide a type

of economic value can result in a poor facsimile of community/participatory research (Malone, 2020). Lastly, Chang et al. (2020) identify a need for the creation of an environment that is conducive to community geography projects, as in, the community partners, the students, and the faculty are all able to participate and be involved from the beginning (Chang et al., 2020).

These frameworks, pedagogical, and research practices are commonly used in community geography to successfully work with community partners and create social change, founded on equality, flexibility, trust, and respect (Boll-Bosse & Hankins, 2018; Rees, 2013; Robinson et al., 2017). These ideals are also employed when teaching students to be community geographers as well (Hawthorne & Jarrett, 2018). As Robinson and Hawthorne (2018) clarify, it is important to create institutional space within academia so community-engaged scholarship can thrive.

Community geography literature often focuses on the pedagogical practices and mindsets ideal in developing community-partnered projects and incorporating students in them. However, less attention is given to the actual partnership structure between the academic institution, and the community partner/organization(s). More discussion is needed on the real pitfalls and milestones to be managed in the creation and maintenance of institutional partnerships, from the side of the university. Placing the steps to and away from these partnerships within a larger analysis of the university and corresponding expectations can provide insight on how to prevent or approach problems in the future, and replicate successes.

### Diversity and inclusion in the geosciences

A historically white, male-dominated discipline(s), the Geosciences is the least diverse of all the sciences (Bernard & Cooperdock, 2018; Huntoon & Lane, 2007). Worse, despite a variety of approaches, strategies, and lapsing discussions, research shows that there has been little change in racial and ethnic representation in Geosciences in the past 40 years (Bernard & Cooperdock, 2018). Several reasons for this are provided, including the “leaky pipeline.” This leaky pipeline suffers from losses in the recruitment, retention, and placement stages (Dutt et al., 2016; Estaville et al., 2006c; Hallar et al., 2010; Holmes, 2015; Huntoon & Lane, 2007; Levine et al., 2007;

McEntee, 2019; Williams et al., 2007). Further, much of the research on the lack of diversity began with examining men/women gender parity in the field, only recently moving to other underrepresented groups, such as those belonging to racial and ethnic groups and LGBTQIA + identities. Recruitment and retention issues lead to students not seeing career viability or altruistic potential. Even when interested, there’s a lack of financial and educational support to retain students sometimes from lack of Geosciences-educated K-12 teachers (Bednarz, 2016, c; Estaville et al., 2006a, b; Levine et al., 2007; O’Connell & Holmes, 2011; Sherman-Morris et al., 2013; Vila-Concejo et al., 2018).

Research shows a variety of successful, pipeline-based strategies for increasing people underrepresented in Geosciences. In recruitment, numerous programs show outreach generates interest amongst students for pursuing the Geosciences (Adetunji et al., 2012; Estaville et al., 2006a; Huntoon & Lane, 2007; Stokes et al., 2007; Velasco & De Velasco, 2010; Wechsler et al., 2005). Increasing Geosciences outreach to teachers, or parents and general society, improves Geoscience knowledge and interest, and helps raise its profile (Bednarz, 2016; Estaville et al., 2006a, b; Huntoon & Lane, 2007; Sherman-Morris et al., 2013). Through activities, these programs provide valuable Geosciences experiences for students, parents, and educators fostering interest and support for career paths. However, simply adding minoritized people to academia, which has systematically prevented their participation, fails to cultivate a truly inclusive environment that leads to retention (Núñez et al., 2019).

These broad and complex challenges provide context for the project discussed here. To address one element of the leaky pipeline, we created a camp for middle school girls, a group identified in the literature as important to foster Geosciences interest in at an early age (Estaville et al., 2006a; Frye et al., 2018). Intervening at the middle school level raises the profile of a Geosciences career earlier than high school interventions. This earlier start allows more time for students to develop a passion for the field and simultaneously convince their family and extended community of its potential as a career and field of study. Participating in Geoscience activities also encourages student confidence in their potential for success, which makes this career path more tangible

and enables them to envision themselves as Geoscientists.

## Methods

This section outlines the stages of community-university member collaboration leading up to the product of G-Camp and post-G-Camp.

### Context

The twin cities of Champaign and Urbana, IL host the University of Illinois Urbana-Champaign, the State of Illinois' flagship educational institution. Champaign and Urbana were established prior to the university, but the university is now a large contributor to the economy of Illinois and of course, Urbana-Champaign. Franklin STEAM Academy, formerly Franklin Middle School, received a Magnet Schools Assistance Program U.S. Department of Education grant in 2017 to support a STEAM magnet program in the Unit 4 District in Champaign. At Franklin, two instructional coordinators regularly organize STEAM events and opportunities for teachers and students to teach and learn STEAM-oriented material. However, like many schools in the district, there is not a notable amount of Geosciences-specific material in the lesson plans.

We entered the University of Illinois' School of Earth, Society, and the Environment (SESE) and found ourselves disappointed in the lack of diversity in the students at our school. Through research, we found that this is a widespread issue throughout the many subfields of Geosciences and found ourselves wanting to impact that lack, leading to the idea of a camp.

### Preliminary planning and early outreach

We initiated the collaboration with Franklin because of their orientation to STEAM. The two instructional coordinators were interested in the collaboration because of the lack of Geosciences lessons in the school's curriculum. One of the authors already had a connection with the middle school, as she mentored a student that attended the middle school. We began meeting with the principal, and two instructional coordinators, which led to multiple planning conversations. In these conversations, transparency was established on both ends, as we made the motivations

of the camp clear both for us and with the Franklin coordinators. The value of working with Franklin was also established, as Franklin has a dedicated effort to incorporate the sciences in its curriculum. Franklin's student population consisted of 55% Black and Hispanic students and 61% students from low-income families, making it an ideal group to bring in students from underrepresented backgrounds (Illinois Report Card). We asked Franklin for help with several key logistical components of the camp: recruitment and transportation for participants.

Before recruitment occurred, Franklin asked for and received multiple instances of our participation in community-focused events. We provided geosciences-focused displays, examples, and activities serving Franklin's events. Franklin also coordinated with us to bring us into classroom sections and after-school organizations for dedicated recruitment time. Teachers and staff also requested learning opportunities from us to help further engage students' interest in Geosciences.

### Recruitment & data collection

Recruitment occurred at community outreach events we attended upon invitation. Students provided feedback on activities provided at the community events, which we received and took note of as we designed future camp activities.

Recruitment also continued online, into the summer to ensure accessibility, and we provided all necessary forms for students online. Franklin provided support as well by distributing the information by utilizing existing communication channels. We ensured accessibility via open communication channels, such as email and phone calls, and made sure to follow-up with parents until camp registration was confirmed. The information provided by parents and the surveys collected from students allowed us to construct an understanding of the group of students we would be working with during the camp, and thus tailor the material to their interests.

### Design and implementation

For students, the camp provided breakfast, snacks, and lunch both days of the camp, free t-shirts with a camp logo, notebooks, and reusable water bottles. Funding for the camp, roughly \$1200 total, was cobbled

together by the organizers (the authors) from various sources. The camp was designed to minimize costs and utilize available resources. Thus, activities relied on technology and supplies already owned by SESE, or the one-time purchase of equipment that SESE could reuse. One department had remaining funding from donors for K-12 education that was used for camp-specific costs, totaling \$700. SESE's contribution which was approved and meted out by the Executive Director, did not exceed \$500. Total, the camp-specific expenditures (not including purchases made by departments for equipment for use beyond the camp, such as GPS units) did not exceed \$1200 (\$700 of which was paid for by the department K-12 grant). Department spending on those purchases for equipment used beyond the camp totaled approximately \$1300, which was separate from camp-specific expenditures. Three SESE staff members assisted with the set-up and organization of the camp events at our request but did not perform work outside their typical day-to-day duties. However, all volunteers, both the graduate student camp counselors and the organizers, were unpaid and did not receive any type of university credit (whether academic or certificate-based) for their participation.

Franklin provided transportation funding for students who arrived at Franklin to ride on a bus to the university building (and back, at the end of camp), at least 10 or 15 min away by vehicle. Parents could also drop off their students directly at the university.

All activities were designed or scheduled by us, and a clear schedule was shared with parents prior to the event. The activities were created partially from the survey responses and community feedback we had received from students, parents, and teachers.

We incorporated representation into the design of the camp, by having women, and especially women of color, geoscience graduate students as camp counselors. Women professors were invited to camper presentations in a conference poster-style event at the end of the camp, asking questions and encouraging student interests. Parents were also invited to their students' presentations.

#### Continuity/maintaining ties

For maintaining community engagement, communication occurred multiple ways. After camp's end, we continued communicating with parents via email and

text. We also maintained active contact with Franklin coordinators and we participated in two middle school community events (pre-pandemic) held by Franklin with information about the camp and Geosciences activities. These accessible opportunities were important for maintaining institutional relationships we had established with Franklin (informal mentorship of interested students, sharing of science/geosciences-related opportunities with classrooms, attendance of community events as requested).

We presented information about the camp at academic conferences, garnering international interest and engaging in conversations with other experts in how to further develop the educational component of this intervention (Cisneros & Guhlincozzi, 2019; Guhlincozzi & Cisneros, 2019). We also discussed the camp at a SESE-wide research symposium. We were invited to give one of the "lightning talks" that are the highlight of the symposium, on G-Camp. Our invitation to give such a presentation strongly implied SESE leadership's continued support. We took this presentation as an opportunity to generate enthusiasm and interest in ensuring the longevity of the camp. We also held regular discussions over the following months with University administrators about the steps required to ensure regular iterations of the camp and create a long-term institutional partnership between SESE and Franklin irrespective of our presence.

#### Results and discussion

The following sections critically reflect on the camp's development, implementation, and subsequent efforts to ensure the longevity of the camp by placing these activities within the framework of the neoliberal university. First, we discuss the separate and shared goals of the university and the school partner. After identifying these goals, we assess whether these goals were met or not and whether each group benefitted or lost in the short and long term. Then, we discuss what we call 'the rupture', which is the series of events that led to a discontinuation of the camp. We describe our efforts to develop supportive networks to ensure the camp's longevity, how this effort was lost when placed against an unyielding and existing institutional structure, and our own burnout from exploitation and the COVID-19 pandemic. From critically assessing these events, we present a model for institutional

partnerships which is informed by ‘the rupture’, focuses on the origin of unyielding institutional structures, and offers potential steps forward.

#### Community school partner and university goals

To identify the camp’s goals from the perspectives of the university and the community school partner, we drew on interviews, documents, and our own perspectives. Franklin level goals were defined based on conversations with school administrators and students, questionnaires, and notes from the organizational stage of the camp. In assessing whether the Franklin goals were met, we considered two perspectives: school administrators and students. The university (SESE) level goals came from SESE’s Strategic Plan of 2019 (SESE, 2019). University goals also represent our own expectations for impact and longevity of the camp, as well as our own academic goals, as graduate students aiming to be future academic leaders and community organizers. In assessing if the university goals were met, we considered both SESE’s perspective and our perspective as graduate students.

The goals of the camp from the Franklin standpoint were identified as:

- Provide a Geosciences educational opportunity at no-cost to students (F1).
- Have university members available to provide community learning opportunities outside of camp (F2).
- Provide long-term connections for students to pursue a science/Geosciences education (F3).

The goals of the camp from the university standpoint included:

- Identify community interest and promote engagement with Geosciences educational opportunities in hopes of leading to future diversity in the field (U1).
- Successfully hold a camp event with full enrollment (U2).
- Establish long-term university structures to continue holding the camp as a form of SESE-wide outreach (U3).

Table 1 breaks these goals down into short- and long-term outcomes, and identifies whether the goals were achieved.

While the camp was successful in the short term, there were clear long-term failures, resulting in losses on both sides. A university-community formal partnership was not established, leaving Franklin with only short-term relationships with transient university members—graduate students—who would not be available after graduation. The university lost a long-term connection opportunity with the Franklin community, and institutional knowledge of how to organize and run the camp. Some short-term losses translated to long term losses. A small number of registered camp participants were ultimately unable to attend because of various last-minute barriers that could not be foreseen or overcome (illness, scheduling conflicts). The fact that the camp was organized by graduate students, not professors or campus administrators, meant that resources were limited which limited the length of the camp and number of students. While these were short term losses, the causes—graduate student organizers rather than professor or university administrator organizers—eventually contributed to the long-term breakdown of the potential for an institutional partnership and ultimately, the camp occurring regularly in the future.

#### ‘The rupture’

‘The rupture,’ occurring among different university participants, refers to the series of events that led to discontinuation of the camp. Two key factors of the rupture were: differing goals amongst university participants (1), and COVID-19 (2). While the latter is rare and unforeseeable, the former is rooted in power differentials and politics that can impede community geography projects. This section deconstructs the rupture from our graduate student perspective as project organizers.

In this case, the power structures of the “academy,” which SESE is located within, are part of why the Geosciences has pre-existing structural bias against people of color/underrepresented backgrounds (Bernard & Cooperdock, 2018). This community geography project was trying to combat those power structures through partnering with a community institution with a direct line to people of color underrepresented in the academy and the Geosciences. As a community geography project, our goals for the camp involved: “creating reciprocal relationships between community and university partners, and the

**Table 1** The short- and long-term successes and failures of the camp and institutional relationships

	University (SESE)		Community school partner (Franklin)	
	SESE	Camp organizers (Authors)	Franklin administrators	Franklin students
Short term wins	Educational Outreach and “Broader Impacts” (U1)	Successful experience in promoting community engagement and relationships (U1)	Geoscience education and resources offered through local experts promoting positive learning opportunities for students (F2)	Multiple opportunities to engage with Geosciences topics and experts (F1, F2, F3)
Short term failures	(No clear failures identified)	Not all students registered were able to attend—last minute conflicts, accessibility issues (U2)	Transportation opportunities cost more than planned and the local middle school organizers had to approve the use of additional funding (F1)	(No clear failures identified)
Long term wins	Institutional knowledge of how to organize a camp (U3)	Created a potentially long-term impact and gained experience on how to diversify the Geosciences (U1)	(No clear wins identified)	Geosciences knowledge and interest were initiated and supported (F2, F3)
Long term failures	Lack of clarity of how to integrate the camp within the existing and rigid structure of the institution (U3)	So far, any future camp hinges on the efforts of the authors to organize again (U3)	When individual experts leave, the school’s access to those experts and geosciences resources are lost (F1, F3)	Students no longer have a geoscience camp to attend, this opportunity to development of knowledge and skills is lost (F3)

negotiation of collaborative knowledge production and shared power” (Block et al., 2018; Robinson et al., 2017). Challenges that have been commonly identified in community geography literature were seen here, through this ‘rupture,’ of gaining faculty member support without clear structural support—such as course releases. We, as organizers, also faced the noted explicit internal politics that in this case failed to destabilize the power structures of the university and its involvement with the community (Fudge Schormans et al., 2019).

The rupture occurred partially due to an unsustainable approach to the camp by SESE leadership. We were entering the next phases of our dissertation work and would not have time to lead the camp the next year. New leaders were needed to strengthen relations with Franklin and ensure the camp’s long-term sustainability. In addition, sustaining the camp required a commitment of resources including funding for the camp and compensation for those who organize and work at the camp. The failure of SESE administration to address these issues was key to the rupture, and led to differing goals and power differentials

among university members for the university’s side of the partnership. The next section examines how and why the rupture occurred, as framed within the complex structure of SESE.

SESE includes the departments of Atmospheric Sciences, Geography and GIScience, and Geology, each of which is independently organized, with its own department head and internal structure. The school (SESE) is a larger organizing body that coordinates budgets and academic planning among the departments. SESE has a Board of Directors and a Director. However, the departments are semi-autonomous in their choices and organization.

When we first sought to address issues of diversity in the Geosciences, the camp was pitched to the Board of Directors as a SESE-wide effort. Due to concerns about lack of interest, and SESE lacking institutional knowledge on camp coordination, the idea was tabled with interest by the Board. It was at this point that we reached out to the instructional coordinators at Franklin. After that, SESE gave support for the project once interest from the community was established through registration. The camp’s success led to

significant interest amongst many university members.

Because of the semi-autonomous nature of the SESE departments, G-Camp inspired a variety of approaches within SESE to long-term planning. One department formed a committee to explore the possibility of hosting a field-specific camp and invited us to attend a meeting and discuss with them next steps. We also had specific ideas of what path the camp would follow; we envisioned a more coordinated SESE effort where the camp cycled through 4–5 years of subject-specific themed activities. This cycling meant campers could participate throughout middle school and after five years, camp themes and activities could be recycled, requiring less upkeep from the university coordinators. It was clear this effort would take all four departments and SESE's leadership to commit to such a model, and so we began conversations with the SESE Director on how best to move forward.

After the camp was held, we sought out university support to create structures that would ensure an institutional partnership. The Director of SESE agreed structure was necessary and made several recommendations to us for moving forward:

- Identify interested members of each department to assist with the camp.
- Develop a leadership structure that would ensure institutional knowledge was sustained.
- Host a workshop to show how the camp was organized and generate interest to commit to coordination.

Additionally, we shared the opportunities to participate in the future development of the camp, coordinating a SESE-wide workshop to discuss next steps. The workshop was well-attended, and engagement and participation were steady throughout. However, the last hour focused on structuring long-term organization and leadership for the camp through a SESE Outreach Committee. Leading the discussion, we saw attendees were nervous about committing to a new committee without explicit funding or other forms of structural support. These concerns were entirely in-line with the issues faculty in the literature express concern over when taking on community geography initiatives (Block et al., 2018; Robinson et al., 2017). Attendees highlighted different issues—lack of funding, lack of time from professors, additional workloads going uncompensated, and other

similar equitable labor-related concerns. To address these concerns, we suggested various strategies including: applying for NSF GeoPaths grant to support the project; establishing a committee to alleviate the load of camp organization and management; and providing financial support or course releases for professors and graduate students to work on the project.

Ultimately through the group discussion, it became clear a SESE Outreach Committee needed explicit support from the SESE leadership, and clear methods for supporting all who participated on it. However, the power dynamics of those interested in moving forward with the committee, and those who had the ability to direct resources and address concerns, were clearly imbalanced. Faculty were unwilling to commit without clear support. SESE leadership was unwilling to commit clear support when prompted. Without the concerns around workload and structural support being addressed in the meeting, two factors community geography literature notes as key to successful work, we were left uncertain on a path forward. The lack of commitment in the moment stemmed not only from power imbalances between SESE leadership and faculty, but also from ongoing power relations between us, graduate students, and SESE leadership. The workshop had been designed by us from a recommendation from SESE leadership in order to garner support for the camp and the Outreach Committee from faculty, with the understanding we already had support from SESE leadership. In the workshop, with that support no longer explicitly available, we felt uncomfortable moving forward with organizing the camp without structural support, such as the committee. A committee was needed to ensure the coordination, design, and implementation load was shared and transferred away from us, graduate students, and to fully integrate the camp into the structure of the university, while beginning to address concerns by the faculty about workload and structural support.

These challenges were compounded by the COVID-19 pandemic which led the University of Illinois, like many other universities in the U.S., to stop in-person activities and transition to online working. The SESE Director reached out to us in June of 2020 to reinitiate discussions around organizing the camp. However, by this time we were unable to meet, due to managing COVID-19-related stresses and our

own growing concern with the lack of clear structures to move forward with in planning.

In SESE's case, the inability to create support for the camp as an important initiative can be attributed to the differing goals amongst university members—SESE leadership and the graduate students. The understanding of SESE leadership's goals we feel are exemplified in the SESE strategic plan for the next five years. This plan was published online July 2019 and written in collaboration with all SESE department leaders, the director, and with department faculty (SESE, 2019). In the strategic plan, 10 strategic goals were identified, but only two seem to consider diversity and community collaboration, key points for showing goals relating to the work that G-Camp achieves.

The eighth goal was “increase diversity within SESE” which centered strategies on recruiting undergraduate and graduate students of underrepresented minorities into SESE. Goal nine is listed as, “increase school visibility.” This goal is intended to “increase the visibility of [SESE's] academic programs and the footprint of [SESE] within the College of LAS, across campus, within the local community and the State of Illinois, and nationally and internationally.” The only strategy in this goal directed at the “local” community was the following section:

Given that SESE disciplines are often not well represented in high school curricula, especially at rural and underrepresented minority-serving schools, we will explore actions to make more students aware of the opportunities SESE offers as excellent professional alternatives to the standard STEM tracks most of them follow, beginning in high school.

—SESE Strategic Plan, 2019

The language of this strategy shows a lack of emphasis on this action to work with the community, focusing on the exploration of potential actions, rather than a clear plan of who to work with. Despite the fact that SESE claims to support community outreach, it was unwilling to take the necessary steps and devote resources to make the camp outreach a priority, even when provided with the opportunity to do so.

The plan fits into the expectations of the neoliberal model of the university—a focus on research, publications, and a higher profile as a university and unit of the university. Faculty are better equipped to complete

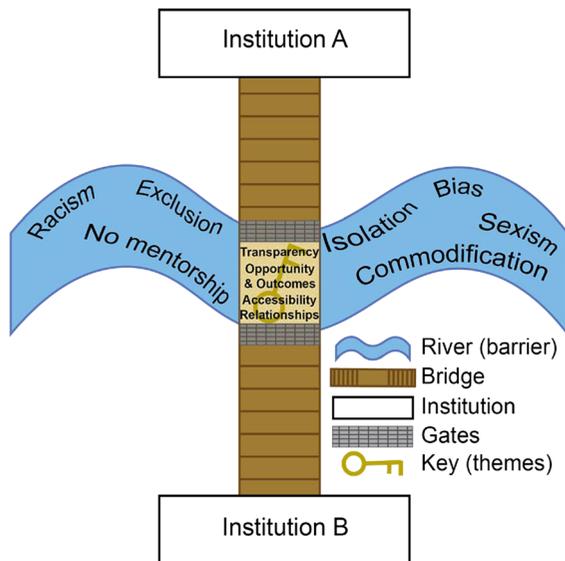
these goals surrounding research through the established research-based partnerships faculty already have because they are researchers and college educators first. Further, the university does not incentivize or specifically create the environment necessary for faculty to be supported in pursuing community collaborations. Within the strategic plan, there is not room for a detailed community outreach plan because these are not skills the university expects its members to foster. Successfully establishing institutional partnerships requires more than individual university members (faculty or graduate students) with a passion for community outreach. Successfully establishing institutional partnerships requires a shift in university expectations and goals.

### **Implications for practice: creating a model for institutional partnerships**

Although the institutional partnership attempt post-camp ultimately failed, we believe the G-Camp case study offers insights into establishing sustainable institutional partnerships between the university and the community. This section details a proposed model for establishing and maintaining institutional partnerships for similar events in any community. The model's principles are access, transparency, opportunities and outcomes, and relationships. The representation of these four principles fitting together is displayed in Fig. 1.

There are two institutions, each located on the opposite sides of a river. The institutions want to work with each other, and so a bridge exists to cross a river made impassable from biases and exclusionary methods. However, there is no trust between the two institutions, and each side of the bridge has gates that are locked on both sides of the bank. To unlock the gates, each institution needs a key to the opposite gate. Each institution has something the other wants—in the case of creating the SESE G-Camp, the university had resources, while the community group (Franklin) had underrepresented youth that the university wanted access to.

For an institutional partnership formation, a relationship is required—researcher knowing a teacher at a school their child attends, neighbors to a community member, etc. In this case, one of the authors had a relationship with some Franklin staff members



**Fig. 1** Model for establishing and maintaining institutional partnerships. This model depicts the barriers to and methods of developing an institutional partnership. The legend refers to the individual elements of the model

through her own service and mentorship of a student. From this relationship, we approached the development of an institutional partnership with the rest of the principles in mind to provide access and opportunities and outcomes to both institutions and were transparent in our motivations. Because of the principles being met, we were able to build trust, offer equanimity, mentorship, and more.

However, the actual partnership was unable to develop because of discord on our side with the university, and so the bridge could not become permanently unlocked, failing to lead to full community collaboration beneficial for both groups. The keys to the bridge and coordination on both ends of the bridge are necessary in keeping the bridge permanently unlocked. University members in this case had differing goals, expectations, and perspectives on how to provide their end of the institutional partnership. Without this coordination and clear outlining of goals from the beginning of the process, the university could not provide their side of the partnership.

## Conclusion and future research

Community geography research has focused much of its attention on the successful collaboration of the

university individual with the community and offered much guidance on serving the community. However, less scrutiny has been directed to the actual formation of an institutional partnership between the university and the community. Specifically, what are the structures that must be set up to form these partnerships and support the key actors within the institutions pursuing these partnerships? What positions must be created and whom do they serve? While community collaborations have successfully occurred, they are not always maintained because of a lack of specificity surrounding this topic.

This paper has detailed the steps of what made a single iteration of community collaboration successful. The areas where the university members failed to successfully mobilize a lasting creation of structures to support an institutional partnership from the side of the university have also been identified.

This paper found that access, opportunities and outcomes, transparency, and relationships were key to a successful community collaboration. However, the university members did not all share the same long-term vision and expectations of what structural components were necessary for an institutional partnership, leading to the breakdown of the university's side of the partnership. However, the proposed model still lacks clear ways of forming or creating the cohesive synergies within the neoliberal university institution to create that end of the partnership. The model depicts what a successful community-university partnership would be built on if a university partner were prepared to engage and share in meeting the principles of the model. Future research would test the impact on the creation of a successful foundation within the university to develop the university's side of the partnership, in response to the concerns defined in Block et al. (2018) and seen in our experience with faculty at the workshop. We found that institutional movement is too slow to be able to adjust or capture the opportunities to achieve the university's own strategic goals when they arise. When the university relies on pre-existing connections to the university as its sole source of outside engagement, the same privileged populations will be brought to campus. An example of this is that many faculty members were comfortable stating they were "involved with the community" with students from the Chicago suburbs, three hours away from where UIUC is located. Meanwhile, many of the local middle school students

had never stepped foot on the UIUC campus, living less than five miles away from campus. Graduate students are viewed as transient members of the university, who can bring in unique ideas to push the university forward. However, if graduate students are not offered a clear, institutionally-formed structure to include their ideas and bring them in, the graduate students eventually leave and take their ideas with them and that is a loss to the community, and the institution. Further, the environment of the university is also not conducive to faculty taking on these outreach initiatives, although they do have more privileges than graduate students as more permanent members. Although COVID-19 made things difficult for all people everywhere, if the structures and goals had been in place by the institution already, COVID-19 would not have the level of devastation that it did on the camp. For example, a UIUC school-wide outreach initiative, the Engineering Open House, was quickly recreated in virtual format.

However, these community geography projects cannot happen without some reorientation of the university mission, or the job expectations of the university administrative units, as noted by Chang et al. (2020). Graduate students, and even faculty members, should not be solely responsible for the creation of these initiatives. Faculty members should not initially be required to serve as the primary leads on these projects, without clear structural supports already in place, such as course releases or some other compensation, otherwise sustainability is not feasible (Ehrman-Solberg et al., 2020). SESE's strategic goals show that the neoliberal model of the university does not support, nor does it emphasize what is required to create the internal structures required to support institutional partnerships with the community. Without these structures, community geography projects will be poised for failure.

#### Declarations

**Conflict of interest** The authors declare that they have no conflict of interest.

#### References

- Adetunji, O. O., Ba, J. C. M., Ghebream, W., Joseph, J. F., Mayer, L. P., & Levine, R. (2012). Geosciences awareness program: A program for broadening participation of students in Geosciences. *Journal of Geoscience Education*, 60(3), 234–240. <https://doi.org/10.5408/10-208.1>.
- Bednarz, S. W. (2016). Placing Advanced Placement® human geography: Its role in U.S. Geography Education. *Journal of Geography*, 115(3), 84–89. <https://doi.org/10.1080/00221341.2015.1083043>.
- Bernard, R. E., & Cooperdock, E. H. G. (2018). No progress on diversity in 40 years. *Nature Geoscience*, 11(May), 292–295. <https://doi.org/10.1038/s41561-018-0116-6>.
- Block, D. R., Hague, E., Curran, W., & Rosing, H. (2018). Measuring community and university impacts of critical civic geography: Insights from Chicago. *Professional Geographer*, 70(2), 284–290. <https://doi.org/10.1080/00330124.2017.1366777>.
- Boll-Bosse, A. J., & Hankins, K. B. (2018). “These Maps Talk for Us:” Participatory action mapping as civic engagement practice. *Professional Geographer*, 70(2), 319–326. <https://doi.org/10.1080/00330124.2017.1366788>.
- Chang, H., Granek, E. F., Ervin, D., Yeakley, A., Dujon, V., & Shandas, V. (2020). A community-engaged approach to transdisciplinary doctoral training in urban ecosystem services. *Sustainability Science*, 15(3), 699–715. <https://doi.org/10.1007/s11625-020-00785-y>.
- Cisneros, J., & Guhlincozzi, A. R. (2019). Geoscience Camp! Methods for Introducing Geosciences to Middle School Girls, poster presentation, American Geophysical Union Fall Conference, San Francisco, CA, Dec.
- Dutt, K., Pfaff, D. L., Bernstein, A. F., Dillard, J. S., & Block, C. J. (2016). Gender differences in recommendation letters for postdoctoral fellowships in geoscience. *Nature Geoscience*, 9(11), 805–808. <https://doi.org/10.1038/ngeo2819>.
- Ehrman-Solberg, K., Keeler, B., Derickson, K., & Delegard, K. (2020). Mapping a path towards equity: Reflections on a co-creative community praxis. *GeoJournal*. <https://doi.org/10.1007/s10708-020-10294-1>.
- Estaville, L. E., Brown, B. J., & Caldwell, S. (2006a). Geography undergraduate program essentials: Recruitment. *Journal of Geography*, 105(3), 93–98. <https://doi.org/10.1080/00221340608978670>.
- Estaville, L. E., Brown, B. J., & Caldwell, S. (2006b). Geography undergraduate program essentials: Retention. *Journal of Geography*, 105(2), 47–52. <https://doi.org/10.1080/00221340608978660>.
- Estaville, L. E., Brown, B. J., & Caldwell, S. (2006c). Geography undergraduate program assessment: Placement. *Journal of Geography*, 105(6), 239–248. <https://doi.org/10.1080/00221340608978693>.
- Frye, M., Wang, C., Nair, S., & Burns, Y. (2018). miniGEMS STEAM and Programming Camp for Middle School Girls. 2018 CoNECD-The Collaborative Network for Engineering and Computing.
- Fudge Schormans, A., Wilton, R., & Marquis, N. (2019). Building collaboration in the co-production of knowledge with people with intellectual disabilities about their everyday use of city space. *Area*, 51(3), 415–422. <https://doi.org/10.1111/area.12492>.
- Guhlincozzi, A. R., & Cisneros, J. (2019). Geoscience Camp! Methods for Introducing Geosciences to Middle School Girls, oral presentation, Latinx Excellence in the Midwest Conference, Iowa City, IA, Oct.

- Hallar, A. G., McCubbin, I. B., Hallar, B., Levine, R., Stockwell, W. R., Lopez, J. P., & Wright, J. M. (2010). Science in the mountains: A unique research experience to enhance diversity in the geosciences. *Journal of Geoscience Education*, 58(2), 95–100. <https://doi.org/10.5408/1.3534851>.
- Hawthorne, T. L., & Jarrett, O. S. (2018). Developing the next generation of community-based scholars. *Professional Geographer*, 70(2), 291–297. <https://doi.org/10.1080/00330124.2017.1366780>.
- Holmes, M. A. (2015). Who receives a geoscience degree? In *Women in the geosciences: Practical, positive practices toward parity* (pp. 13–16).
- Huntoon, J. E., & Lane, M. J. (2007). Diversity in the geosciences and successful strategies for increasing diversity. *Journal of Geoscience Education*, 55(6), 447–457. <https://doi.org/10.5408/1089-9995-55.6.447>.
- Levine, R., González, R., Cole, S., Fuhrman, M., & Le Floch, K. C. (2007). The geoscience pipeline: A conceptual framework. *Journal of Geoscience Education*, 55(6), 458–468. <https://doi.org/10.5408/1089-9995-55.6.458>.
- Lopez, C. W. (2020). Community geography as a model for improving efforts of environmental stewardship. *Geography Compass*, 14(4), 1–12. <https://doi.org/10.1111/gec3.12485>.
- Malone, A. (2020). Migrant communities and participatory research partnerships in the neoliberal university. *Migration Letters*, 17(2), 239–247. <https://doi.org/10.33182/ml.v17i2.805>.
- McEntee, C. (2019). AGU's Bridge Program creates opportunities for underrepresented students, *Eos*, 100, <https://doi.org/10.1029/2019EO137314>. Published on 05 December 2019.
- Núñez, A.-M., Rivera, J., & Hallmark, T. (2019). Applying an intersectionality lens to expand equity in the geosciences. *Journal of Geoscience Education*. <https://doi.org/10.1080/10899995.2019.1675131>.
- O'Connell, S., & Holmes, M. A. (2011). Obstacles to the recruitment of minorities into the geosciences: A call to action. *GSA Today*, 21(6), 52–54. <https://doi.org/10.1130/G105GW.1>.
- Rees, A., & Becker, B. (2012). "Shaping OurSpace." Columbus, GA.: Columbus Community Geography Center. Report. <https://csuepress.columbusstate.edu/ccgc/4>.
- Rees, A., et al. (2013). "Food Pantries and Food Accessibility in Columbus, GA." Columbus, GA.: Columbus Community Geography Center. Report. <https://csuepress.columbusstate.edu/ccgc/21>.
- Robinson, J. A. (2010). Syracuse community geography: Evaluating a new approach to public participation geographic information systems. PhD Thesis. University of North Carolina. 312 pp. <https://doi.org/10.1017/CBO9781107415324.004>.
- Robinson, J. A., Block, D., & Rees, A. (2017). Community geography: Addressing barriers in public participation GIS. *Cartographic Journal*, 54(1), 5–13. <https://doi.org/10.1080/00087041.2016.1244322>.
- Robinson, J. A., & Hawthorne, T. L. (2018). Making space for community-engaged scholarship in geography. *Professional Geographer*, 70(2), 277–283. <https://doi.org/10.1080/00330124.2017.1366775>.
- SESE. (2019). "School of Earth Society Environment Strategic Plan (AY 2019–2020–AY 2024–2025)". Report. 4 October 2020. Retrieved from <https://earth.illinois.edu/resources/strategic-plan#:~:text=SESE%20aspires%20to%20be%20a,will%20be%20trained%20as%20leaders>.
- Sherman-Morris, K., Brown, M. E., Dyer, J. L., Mcneal, K. S., & Rodgers, J. C. (2013). Teachers' geoscience career knowledge and implications for enhancing diversity in the geosciences. *Journal of Geoscience Education*, 61(3), 326–333. <https://doi.org/10.5408/11-282.1>.
- Stokes, P. J., Baker, G. S., Briner, J. P., & Dorsey, D. J. (2007). A multifaceted outreach model for enhancing diversity in the geosciences in Buffalo, NY. *Journal of Geoscience Education*, 55(6), 581–588. <https://doi.org/10.5408/1089-9995-55.6.581>.
- Velasco, A. A., & De Velasco, E. J. (2010). Striving to diversify the geosciences workforce. *Eos*, 91(33), 289–290. <https://doi.org/10.1029/2010EO330001>.
- Vila-Concejo, A., Gallop, S. L., Hamylton, S. M., Esteves, L. S., Bryan, K. R., Delgado-Fernandez, I., Guisado-Pintado, E., Joshi, S., Da Silva, G. M., de Alegria-Arzaburu, A. R., & Splinter, K. (2018). Steps to improve gender diversity in coastal geoscience and engineering. *Palgrave Communications*, 4(103), 1–9. <https://doi.org/10.1057/s41599-018-0154-0>.
- Wechsler, S. P., Whitney, D. J., Ambos, E. L., Rodrigue, C. M., Lee, C. T., Behl, R. J., Larson, D. O., Francis, R. D., & Holk, G. (2005). Enhancing diversity in the geosciences. *Journal of Geography*, 104(4), 141–149. <https://doi.org/10.1080/00221340508978630>.
- Williams, Q. L., Morris, V., & Furman, T. (2007). A real-world plan to increase diversity in the geosciences. *Physics Today*, 60(11), 54–55. <https://doi.org/10.1063/1.2812124>.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.