

Are We There Yet?:Building and Exploring Equity in Research-Community Partnerships of Varied Scales and Durations

Abstract

Informal learning environments are an important part of the educational landscape for diverse learners, and do their best work when creating learning experiences that align with community interests, needs, and ways of knowing. While models exist for exploring design partnerships between schools and communities, fewer evidence-based models are available for these design collaborations between informal learning environments and communities. The overarching question of the proposed session is: How do informal learning environment designers, researchers, and practitioners work with communities to co-design and co-implement socially engaged and equitable educational programs in different sociocultural contexts across the world? As a part of this symposium we highlight projects from Asia, Africa, South and North America that vary both in partnership scale and duration.

Overview:

A number of difficulties can arise when building a community partnership for co-designing any informal learning environment. For example, community members from marginalized racial and socio-economic backgrounds may find their points-of-view alienated during the design process, or they may not have the time, ability, or interest in engage. There is a need for literature within informal learning environments to highlight designs that create accessibility and belonging for all people.

This symposium addresses these identified gaps in the literature by sharing case studies of five equity-focused collaborative design projects centered on building informal learning experiences with a wide variety of stakeholders. The panel brings together informal learning designers, researchers, and practitioners who work with communities to co-design and co-implement educational programs in different sociocultural contexts across the world, inviting community members to take on roles as knowledge providers. We highlight a wide range of different projects across diverse sociocultural contexts to engage in reflective analysis about the various pathways through which community members can be engaged in equitable practices in the process of designing informal learning environments.

In this symposium we ask the following questions:

1. What does equity look like at different “scales” of partnership? What kinds of designs and social/collaborative processes support equity in 2-week, 2-month, or 2-year collaborations? Is equity possible and what does it look like at each scale?
2. When (more) equitable partnership processes are developed, at any scale, what is permitted both in terms of outcome and in terms of process? Beyond ethical and right-relations considerations, what are the benefits, both anticipated and realized, of equity?

Scholarly Significance:

We position our work in conversation with critical scholarly research on participatory design in the learning sciences. Recent trends in the learning sciences have affirmed a commitment to centering non-dominant communities in social and collaborative design research in an effort to

reject colonialist and extractive methods in favor of co-design and social transformation (Gutiérrez & Jurow, 2016; Gutiérrez, Engestrom, & Sannino, 2016). Similar shifts in the field of citizen science reflect a broadening appreciation for the importance of carefully considering equity, collaboration, and partnership development in enhancing the scientific quality and ethical engagement of research (NASEM, 2018). Additionally, most of the examples of partnership building between communities and informal learning environments that are available as a part of the learning sciences and education scholarship are from the United States and other economically wealthy nations. Thus as a part of this session we seek to expand the conversation about how to build community partnerships for designing informal learning environments in different countries and communities across the world.

Session Structure

This symposium includes five papers. One author from each paper will present for 10-12 minutes. The discussant will provide brief summary comments, approximately 5 minutes. It is important to our panelists that a substantial amount of time be reserved for large group discussion, which will be facilitated by the session chair. It is our aim to reserve 20 minutes at the end of the symposium for this discussion.

Weaving Strands of Knowledge: Pursuing Equitable Community-Focused

Purposes and Frameworks: Because of the socio-scientific complexity of climate change, effective educational programs require collaboration among experts and community members that integrates scientific knowledge, cultural understanding, pedagogical expertise, and community engagement (Atran, Medin, & Ross, 2005; Bell et al., 2009; Pidgeon & Fischhoff, 2011). Our international and multi-institutional science education effort – the *Weaving Strands of Knowledge* (WSK) project – leveraged the flexibility of podcasting to bring together narratives/stories of environmental change. Partnership models like these, can, when equitably designed, challenge the top-down way in which much of western science both develops and disseminates scientific knowledge (Medin & Bang, 2014). Our project's main challenge and primary contribution was to build equitable processes for science education and science knowledge creation in the *short term* – a ubiquitous constraint for equitable science in cross-cultural research and programming (Gutiérrez & Jurow, 2016). We critically examine the WSK project with a focus on opportunities and challenges to equitable partnership and culturally inclusive science education.

Modes of Inquiry, Sources of Evidence: The project involved a complex partnership between several universities, science museums, and non-governmental organizations. The project was developed over two years, adapting and transforming a podcasting design for climate change science education in rural Bhutan, rural Vermont, and both rural and urban communities in Goa, India. The project entailed reciprocal exchanges (e.g., partners in the US traveling abroad, and vice versus) and school- and community-based partnerships whose focus was recording stories from local community members about environmental change that they have observed. Students collected and edited the stories and then in some cases worked with museums to display multimedia exhibits.

Research on the WSK project is best described as a collective auto-ethnography. We chose to “study up” – critically repatriating the conventional anthropological gaze inward to examine of our own efforts to work equitably and collaboratively across partners and project team members (Gusterson, 1997). The project team aimed to describe and explore our collective process working with international partners in a design-based educational endeavor (Bell, 2004; Brown, 1992; Vakil et al., 2016). Main data sources include project artifacts, ethnographic fieldnotes, recordings of end-of-day debrief conversations where equity was an explicit topic of conversation, and exit interviews with photo elicitation prompts.

Results and Conclusions: Analyses focus on several domains, such as (1) evidence of the formative value and contribution of partnership-based equitable science. For example, one student majoring in marine science reflected “*One of the most influential things that I learned – especially being a scientist, and a person who is always thinking scientifically – was from being surrounded by so many people that think in different ways. That was really valuable to me... I think this is going to make me a better scientist.*”; (2) evidence of equity as a design attribute of international and cross-institutional science education programming; (3) evidence of epistemological alternatives to coloniality and formal science hierarchy in the efforts of the WSK project to develop new perspectives on climate science education that position the *social* and *cultural* in socio-scientific issue education as assets and epistemological strengths.

Collaborative Design and Education as Decolonizing Practice: A Case-Study of Community Museum Development in Central Belize

Objective: As interdisciplinary community teaching spaces, museums can serve as a nexus for socially engaged and collaborative educational design, fostering and supporting dialogue about how to best understand, curate, and educate around complex social and scientific issues. However, these informal educational spaces are frequently characterized by “teaching” that equals the delivery of expert knowledge and disavows community needs, perspectives, or values (Gutiérrez & Rogoff, 2003; Rogoff, Callanan, Gutiérrez, & Erikson, 2016) This case study (Stake, 1995) presents an analysis of a collaborative community design and development project for the establishment of a museum and cultural heritage center in Belize. For the purposes of this paper, our analysis focuses on moments where the project’s guiding principles of cultural sustainability and collaborative design were reinforced, or troubled, through work with local educators.

Case Context: The Crooked Tree Museum and Cultural Heritage Center is a community-centered permanent exhibition space focused on the human/environment interaction over time in the area of Crooked Tree, Belize. The co-designing process of the museum exhibits is part of a broader project that involves documenting ancient Maya settlement in the region. Excavation of these historical-era sites and collaboration with an ethnographer doing work with Kriol people in Crooked Tree yielded a very successful temporary museum exhibit in the town. The exhibit was built upon historical artifacts found by a regional archeological team, those donated from the collections of community members, and rich ethnographic and oral history data.

Theoretical Framework: As educational designers and researchers, we understand the dual aims of establishing a community-focused and sustainable institution are linked to the process of collaborative design with a diverse array of stakeholders. This web of collaborators reaches from government-level employees providing infrastructural and material support, through the town chairmen, educators, and tourism council, to local Kriol informants, guides, historians, and community leaders. The analysis of this iterative engagement process allows us to contribute to a better understanding of how collaborative educational design can serve as the foundation to decolonizing practice that rejects extractive colonial trends and centers the experiences of non-dominant communities (Gutiérrez & Jurow, 2016; Gutiérrez, Engestrom, & Sannino, 2016).

Data Sources: Data includes observation, survey data, field notes, and researcher reflective writing.

Results: The process of collaboratively designing museum spaces that engage the colonial history of African enslavement and labor in Belize troubled the researchers’ notions about what should be included in the museum, and created opportunities for critical reflection on the role of both museums and collaborative design in the decolonizing process of telling and re-telling marginalized histories in public spaces.

Significance: Principles of decolonization and sustainability are often discussed in abstract, theoretical terms. Here, we challenge ourselves to put into practice the abstract concepts by working in partnership with Kriol community. We put into practice cultural sustainability by not simply by serving as experts who document a threatened and marginalized cultural group, but through public participation where community educators served as both informants and active participants in the collection, recording, and presentation of their history.

Re-imaging and re-constructing cross-cultural research through critical personal narratives: an examination into fault lines

Objective: The purpose of this paper is to explore the historical, political, and personal ways the cross-cultural experiences of the authors help us to interrogate the relations of power present in science education settings in our homes in the U.S. Using critical personal narratives (CPN) (Mutua & Swadener, 2004), we highlight two vignettes, from Author 1 and Author 2's experiences, and discuss the ways our research impacted our conceptions of science and STEM education. Through this examination, we bring awareness to our consciousness about how our past cross-cultural studies have had lasting effects on our current work.

Theoretical Framework: Applying critical feminist theory: As the goal of this study through the use of CPN is to illustrate the impacts of our cross-cultural research in Africa on our current work in science and STEM education, we utilized critical feminist theories to guide our studies. Feminist theory, according to Dietz (2003), is [a] historically constituted, local and global, social and political movement with an emancipatory purpose and a normative content. It posits a subject (women), identifies a problem (the subjection and objectification of women through gendered relations), and expresses various aims ...in the name of specific principles (e.g. equality, rights, liberty, autonomy, dignity, self-realization, recognition, respect, justice, freedom, p. 399). In our study, the problem was to explore the historical, political, and personal ways our cross-cultural experiences helped us to interrogate the relations of power present in science education settings back at home. The goal was not just to interpret/examine these power relations but to reshape and tip the scales of power towards equality.

Methodology: Using critical personal narratives (CPN): We interrogated our work and thoughts in the spirit of CPN (Mutua & Swadener, 2004). In their volume on decolonizing research, they 'urged authors to explore the complexities, contradictions, and [im]possibilities of decolonizing research in essays or personal narratives' (p. 16). We choose CPN as a methodology because it addresses issues of 'power and knowledge in practice' in the story form to 'be accessible to a wider audience' (Chapman, 2004, p. 72). CPN is intended for a public audience. Therefore, although personal understanding is involved, its purpose is political. Through the use of narratives, we lean on feminist scholars such as Spivak (1983).

Results: Due to the truncated nature of this proposal, we do not include the narratives but provide a description of the themes across the narratives. In the presentation, we will provide the full narratives.

Themes in shifting conceptions: A goal of our CPN analysis was to understand if there were commonalities in our experiences and to understand the way these experiences influenced our academic lives. We found three structural fault lines: (1) Formal conditions: the ways the research was constricted due to institutional and funders expectations and requirements, (2) Tensions around knowledge: a theoretical and methodological knowledge that is valued and the type of epistemological knowledge that is appreciated by the researchers, (3) Practical processes and dynamics: privileging product over process.

Storytelling, Technology and Environmental decision-making: A Community – Researcher Participatory Design Partnership.

Objectives: Community-research partnerships in education often focus on addressing social, structural, and environmental injustices faced by partnering communities. These partnerships are conducted through active involvement of community members, organizational representatives, and researchers who contribute their expertise to enhance understanding of a given socio-environmental issue.

This presentation provides perspectives from a Community-Research partnership that was created to address socio-environmental issues related to the community through a program with Coeur d' Alene (CdA) Tribal youth. This partnership between the Coeur d'Alene Tribe, University of Idaho, and SUNY-Buffalo addresses the following research questions to develop a model for Community-Research partnerships that can be utilized to design educational programs that will focus on community priorities:

1. How do Tribal members and researchers in a Community – Research partnership address needs that are important to community members and researchers?
2. What are the challenges researchers and community members face in order to design programing that is aligned with local ways of thinking and knowing?
3. What are perspectives that community members and researchers share in order to design programs that yield maximum advantages for youth in the community?

Theoretical perspectives: Research as an organized scholarly activity is a powerful tool used for designing policy for governance (Pidgeon & Cox, 2002; Bishop, 1998; Minh-ha, 1989). “Policy and programming grow out of research, and while the influence of research and its methodologies is not always visible in the policy cycle, research is where it starts” (Kovach, 2009). Conducting research with an Indigenous lens is critical, as the inferences drawn from the findings are more aligned with the priorities of the Indigenous communities (Wilson, 2008).

Data sources: Qualitative and quantitative data from the Tribal and University researcher staff, community advisory committee, and Tribal youth will be presented. This data was collected through interviews, focus groups, pre-post surveys and podcast development throughout the program design process and during the program itself.

Results: With a focus on describing lessons learned and challenges encountered while building a Community-Research partnership, the results will be presented in two parts: 1. Different approaches and perspectives taken into consideration while conceptualizing and co-designing the summer program with Tribal members and University researchers will be presented. This will explore how the partnership worked together to ask research questions that both meet community needs and are of interest to an interdisciplinary research community. 2. Perspectives from each member of the partnership, including the youth involved in the program, will be presented and synthesized to present a working model for designing a collaborative six-week summer science internship program for Tribal youth.

Significance: Forging community-research partnerships that work to prioritize community agendas and initiatives are essential. Learning to design research and educational programs that take all perspectives into account can be a time-consuming and challenging process. However,

committing to these collaborations can result in research and education that promotes education and policy change that is sustainable within the community.

A Reflexive Analysis of University-Community Partnership in Computer Science Research

Objectives. Racially minoritized youth are underrepresented in STEM, often lacking opportunities for computer science (CS) due to under-resourced schools and a lack of preparation for CS teachers (Margolis, 2017). In order to democratize CS, the teaching of computing needs to help youths from vast economic, cultural and linguistic backgrounds develop a sense of competence and belonging in the CS field (Kafai, Searle, Martinez, & Brayboy, 2014). Our work seeks to address this underrepresentation by utilizing culturally relevant (CR) frameworks (Ladson-Billings, 1995) that integrate knowledge relevant to youths' identities and communities with computational learning activities in out-of-school learning centers. Specifically, we ask: *How can community partnerships and culturally relevant STEM programming support equitable access to computer science in community-based settings?*

Theoretical perspectives. K-12 schools are unable to fulfill the goal of broadening participation in computing alone. Rather, informal institutions such as libraries and community-based organizations could play an active role in supporting formal school efforts (Kumasi, 2010). Knowledge of community is foundational in developing CR computing programs, with the potential for increasing the engagement, competence and belonging of underrepresented youth in CS (Egash, Gilbert, & Foster, 2013). The project team consists of community members, organizational staff, university researchers and undergraduate facilitators (Figure 1). This work employs three strategies aligned with CR frameworks: (1) research-based CS practices for engaging diverse youth; (2) practices that build on the knowledge and assets of communities; and (3) undergraduate CS students as role models to represent the identities and interests of youth.

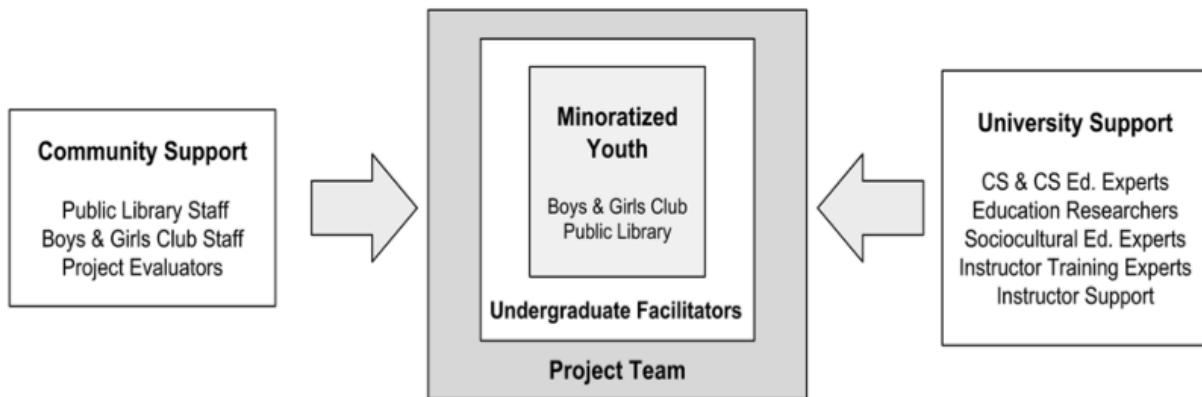
Methods & Data Sources. Our work is situated in two informal settings that serve underrepresented racial groups: Town Public Library and River City Boys & Girls Club. Data were collected during a three-year NSF-funded study. Data sources include observations, facilitator interviews and reflections, student focus groups, and minutes from bi-monthly planning meetings.

Results. Our work centers student identity and prioritizes equitable access by shifting how we think about students (Ladson-Billings, 2011). Through our CR programming, we have been able to reach a diverse audience of students, including students our community partners previously proclaimed to be uninterested in CS. While establishing our partnership, librarians described a group of racially minoritized high school students as unruly "monkeys" that needed to be "pulled down from the trees." In response, our university researchers and undergraduate facilitators intentionally positioned themselves to disrupt these negative stereotypes and deficit approaches (Ladson-Billings, 1995). Results of our study suggest that our CR frameworks helped students to feel a sense of belonging in both the informal learning environment and in the field of computer science. Creating equitable access in CS is an ongoing process of learning from our partnerships and redesigning our CR programming to promote cultural caring and belongingness (Gay, 2002).

Significance. This work is significant for creating a foundation for CR computing. This foundation will lay the groundwork for creating community partnerships that promote equitable access and making CS relevant to youth from underrepresented communities. Further, this

project helps establish the importance of community partnerships in CR and equity focused CS programming.

Figure 1: Project Team and Research Partners



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