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# Science Together: Co-Creating Meaningful Informal Science Education Experiences Between a Science Center and a Temporary Homeless Shelter – A Case Study

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## ABSTRACT

Homeless families are a vulnerable population not often engaged with directly by science centers. In 2019, the Museum of Life and Science formalized and strengthened a partnership with Families Moving Forward, the largest temporary homeless shelter serving families in Durham County, North Carolina. This partnership aimed to engage families in a co-creation process of understanding needs, co-developing projects, and delivering based on mutual interests between stakeholders. Along the way, lessons learned included designing equitable active listening opportunities, honest and transparent assessments of needs and assets, learning how to meet a new audience where they were, and learning how to be inclusive and accessible to an audience who is rarely designed with or for in museum settings.

## ARTICLE HISTORY

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## Lexicon

A word on lexicon – there is no definitively or fully agreed-upon word to describe the experiences and identities of homelessness. Some people prefer this to be called houselessness, unhoused, unsheltered, or other words for describing what is ultimately a vast and large set of identities and experiences.<sup>1</sup>

Word choice matters and decisions on how to refer to a group of people ought not to be determined in isolation. As with many other difficult, ambiguous, and sometimes unclear aspects of this project, deciding on how to refer to a group of people is best done by asking for their opinion and perspective and following their guidance based on what word or words best describe and reflect them. Based on our current understanding through this reflection, we choose the word “homeless,” but in full recognition that this may not be the word that others feel best describes them or their experience.

The authors’ advice is to carefully consider word choice and, when in doubt, to ask. You will find this thread of advice strung throughout the entirety of our paper. We follow a central premise that ultimately the best thing you can call someone is their own name, pronounced correctly.

## Gaps in the literature

Though there exists some research into educational collaborations with homeless shelters, there is very little in the literature that describes equitable partnership practices between science centers and homeless shelters. Though ours is a work-in-progress, sufficient time has elapsed and work has progressed to the point that the authors, representing members and perspectives of the partnership from both the science center and homeless shelter, feel there are lessons learned that can be shared towards closing this literature gap.

## The partnership

*Science Together* describes a swath of activities that make up a robust and meaningful partnership between the Museum of Life and Science (hereafter MLS) and Families Moving Forward (hereafter FMF), Durham County's largest homeless shelter and service provider for families experiencing temporary homelessness. This partnership grew out of a years-long relationship as community partners to whom the museum gave scholarships and free passes but was formalized and strengthened through a federal grant, Building Capacity for Co-Created Public Engagement with Science (NSF DRL #1811118), which served as an impetus and starting block for this collaboration.

It was important to the authors not to have our partnership be solely relegated only to a federal grant. It is incredibly hard, if not impossible, to establish trusted, equitable partnerships when relying only on the federal grant cycle. It is the opinion of the authors that truly equitable partnerships require genuine investment beyond a grant paying the bill.

In recognition of this ethos, in 2019, this partnership began a co-creation process intended to figure out how to best leverage our distinct but complementary sets of experiences towards a mutually beneficial goal: working with families to create meaningful informal science experiences while in-shelter. What has followed over the past three years was a long and intentional process of multi-directional learning, goal and agenda-setting, meaning-making, and collaboration.

## The opportunity

Families stay temporarily at the FMF shelter while working, saving money, and moving into more permanent housing situations. The time these families spend in-shelter can be characterized as a time of acute crisis, stress, and trauma. During this time, which generally averages around three to four months, families often search for opportunities to have a sense of closeness, fun, and a semblance of normalcy with their children and as an entire family unit. Both FMF and the individual parents staying at the shelter strive to have their stay in-shelter be as minimally disruptive to the lives of their children as possible.

This partnership was galvanized around the opportunity to co-create programs centered around this goal of engaging the full family and creating a meaningful, fun, and productive experience for bonding and whole-family learning. The partnership recognized and aimed to effectively leverage multiple types of experience and expertise – the expertise of informal science educators in developing engaging whole-family

science experiences, the expertise of FMF staff and educators in responsibly, respectfully, and effectively engaging with the stakeholders they serve, and the experiences and expertise of the families staying in-shelter themselves – in determining what science and programming feels most relevant, interesting, and engaging to them.

Meanwhile, the social stigma and the subsequent toll on the well-being and mental health of both parents and youth is well-documented and central to understanding the goals of our partnership. Parents staying in-shelter often describe feelings of low self-esteem, guilt, and shame, as well as a need to protect their children from experiencing public scorn and stigma associated with the experience and identity of homelessness. These feelings are also captured in the literature about the experience of homelessness.<sup>2</sup> A guiding design tenant of *Science Together* is carefully curating and making space for families and their children to feel safe, welcomed, and wanted. Another central tenant of *Science Together* is that the programs are built and designed to make people feel heard, validated, and cared for.

## The format

With the above goals in mind, *Science Together* now represents a model based on repeat check-ins, collaborative reflection, understanding of mutual interests, and delivering science programs based on family interests for both children and for whole-family units.

Building off of the distinct goals and needs (described above), our central project goal was to build something of use to these families that reflected their desires. The distinctive characteristic of this project, after years of convening listening sessions, has been monthly programming, time built in at the end of each program to understand the content of the next session, and periodic check-ins with educators and families to understand needs related to timing, format, content, and other material needs for science programming. Both of these are coordinated through weekly check-in calls between educators at the museum and at the shelter. These three key components of *Science Together* are described in further detail below.

The three hallmarks of *Science Together* are weekly meetings between organization staff, monthly informal science education programs for a stakeholder audience (described in more detail below), and periodic check-in listening sessions with stakeholders to determine content, context, and direction. This co-creation process between the shelter, the museum, and the stakeholders themselves aims to share power between entities, providing services that are defined as needed by the stakeholder community, and are nimble and agile enough to be reflexive when those needs and desires change.

Rather than being prescriptive over questions of how, when, why, where, and what might be done together, these questions are posed and answered based on consensus-building and transparency about values, priorities, capacity, and interests of the families, and the staff at both institutions. This model de-emphasizes prescribing science content, and instead focuses on what is of interest and import to the stakeholders.

At the beginning of the Coronavirus pandemic, both families and educators at Families Moving Forward described a desire for tactile, whole-family learning that encouraged closeness, collaboration, and active engagement between parents and children while the entire family was at the shelter all of the time. These programs often

relied on bringing materials from the museum over to Families Moving Forward staff for their use within the shelter, and included engineering and building challenges, conversational topics, friendly competitions, project-based learning, and art projects around relevant themes. Activities ranged from “viewing party”-style livestreaming video of animals in their enclosures at the museum to distributing LEGO kits and challenges.

Once the shelter reached a sufficient vaccination level to feel safe (a determination left to the employees at the shelter), programming resumed in-person both indoors and outdoors. There, through more active listening, it was determined that the needs of the stakeholders had shifted and that now programming aimed more towards children was needed. Monthly programming shifted to provide interactive, hands-on experiential science programs for two young audiences – babies and K-5 aged children. Meanwhile, separate bi-monthly listening sessions with parents were scheduled to ensure the program continued to meet stakeholder needs. After hearing about a desire for more outdoor, active, and nature-based programs from families staying at the shelter, special care was taken to develop outdoor and gardening programs to utilize the shelter’s existing garden space and to foster a care and love for the outdoors and living things, as well as a sense of safety and efficacy in garden and outdoor spaces.

Periodic check-ins with stakeholders were needed to consider the duration, time of day, time of the week, format, and content of these programs. All items on the agenda, from how often the programs occurred, to what they would be about, are determined through an ongoing co-creation process.

In all programs, educators seek to be highly interactive, follow an inquiry-based learning model, and work towards building confidence and efficacy with the learners. Informal science education training for these programs emphasizes that the deficit of knowledge is not with the intended audience, it is with the educators and museum employees that intend to work with them. We recognize that current societal and structural differences within nonprofit structures have served to separate many of us from meaningfully building relationships with homeless people before. This represents a real and important lack of expertise and knowledge on the part of many informal science educators. We recognize and know that we must address this insufficient understanding in a meaningful way before creating new initiatives. Furthermore, even well-meaning educators have their preconceptions of homeless people based on highly stigmatized stereotypes of what homelessness is and who homeless people are. Recognizing and working through this unconscious bias is an ongoing and active part of our practice.

## **Replicable lessons learned**

### **Ask**

The realities of nonprofit and museum work, especially related to well-documented lower-than-average wages, long hours, and exploitation of mission/passion have ended in what has been described as a “Museum Sacrifice Measure,”<sup>3</sup> which can serve to decrease diversity in museum workplaces and further separate employees at these institutions from the publics that they hope or intend to serve. This has created a museum education workforce that seems overwhelmingly populated by white people, many of whom are privileged enough to work in a mission-oriented position because of external

privilege factors, potentially including family support (e.g. – a spouse), a lack of student loans, or the presence of trust funds.<sup>4</sup> At the time of writing, five out of the six authors of this article have not themselves experienced homelessness.

This distance between experiences was and is profound and requires active listening, asking questions, sharing power, and being ready, willing, and able to deliver on what families describe as being important, relevant, and interesting to them.

This often takes the form of small focus-group-style meetings or interviews, wherein families are paid for their participation. They are scheduled at times understood to be convenient and appropriate for family participation, and when topics are broached that may be upsetting or triggering, our practice is to inform families that the subject at hand may trigger strong emotions. In such cases, FMF provides a social worker and/or therapist to be onsite to support people who may need to take a break. All of these engagements are voluntary and rely on the sustained trust and supported and incentivized participation of families. What is heard is often repeated back to families in order to ensure that priorities and perspectives are not misunderstood.

Active listening is a sustained process, and the needs of stakeholders can and will likely change. In this particular case study, the stakeholder group itself is temporally bound; many families move out of shelter within three to four months, meaning periodic check-in meetings often have new people who have moved in to shelter and other families who have been involved no longer take part, having moved away. This informs meeting design. The central tenants and agreed-upon frameworks are revisited, edited, and ratified at each meeting so that they best represent the interests of a non-monolithic and rapidly changing group of stakeholders.

A temporary stay in-shelter is an extremely challenging and extraordinary time for families. This fact informs our practices and methods of engagement and means that special care and attention are needed to be paid to ensuring that we meet families where they are and that we do not let a well-meaning collaboration unintentionally lead to more stress.

There was a desire for multiple types and levels of engagement, and that a strategy wholly centered around engaging FMF's audience at the museum campus would not be respectful of the time and energy needed to physically come to the museum. While many families indicated that they were interested in, and intended to come to the museum's campus, transportation and the multi-hour time commitment of visiting with family made this challenging aside from special occasions, even though the cost of coming to the museum was free for them. Though our strategy includes engaging with families on campus through onsite visits and camp scholarships, it became clear during the onset of the Coronavirus pandemic that the engagement strategy required rethinking aimed at making engagements more easily accessible and shorter in duration.

Meeting people where they are for the long-term of the project means keeping existing availability and broadening access for families to come to the museum when they so choose, but also offer engaging programs onsite at the Families Moving Forward shelter, decreasing the transportation barrier and allowing for shorter, impactful engagements that can occur on weekdays.

Meeting people where they are also means meeting people when and how they are able to meet. This means planning and strategizing not only for work that happens outside of the museum's walls but also for work that occurs outside of normal work hours – often

on weekends and in the evening. It also means being prepared to be reflexive and respond to a last-minute ask. Often, this means scheduling things with several days' notice rather than weeks.

### ***Take an honest assessment***

Ensuring equity in a partnership means ensuring reciprocity. *Science Together* began by taking an honest assessment of what budget, resources, and assets the museum had available and useable. Similarly, MLS staff conveyed what else they were ready, willing, and able to bring to the table. In many cases, for this type of partnership, it is appropriate and right and good for the museum to pay their partners for their labor, or to at least ensure that their labor is compensated as a matter of respect and reciprocity.<sup>5</sup>

### ***Be ready to be uncomfortable***

The authors recognized early that *Science Together* would be a process of unlearning our sense of ease and our traditional role within a classroom. The authors want to stress that should you choose to undertake a similar endeavor, many of the conversations you may have will be difficult, and that facilitating them may be emotionally taxing. For this reason, educators facilitating programs do not do so alone and often do so in at least pairs to support one another, and educators from both institutions are present to learn from and take cues from one another.

### ***Build for sustainability***

Our ethos is that a program that is not designed for sustainability is not designed for equity. Communities are right to be skeptical of outside entities when projects are born and die with a federal grant. It is imperative to us that *Science Together* have visibility, input, and buy-in from various levels of the hierarchy at both institutions, so that genuine investment beyond a federal grant will continue to fund activity for the long-term.

### ***Build for accessibility***

For *Science Together*, accessibility meant shifting educational practices in several specific ways to ensure families were able to meaningfully participate.

Of utmost importance was protecting anonymity and never collecting or sharing any identifiable information, photos, or data about any participants in any program, site visit, listening session, or other *Science Together*-related activity. Homeless people, children, and homeless children are a vulnerable audience in need of special consideration. No photographs or data is ever to be shared without explicit consent to protect the confidentiality of children involved, many of whom have classmates or friends whom they may not have informed about their living situation. In an attempt to protect people from being exposed to undue and traumatic stigma, no identifiable information is collected or shared during our collaborative work. Ensuring strict rules and guidelines for anonymity, and being clear and explicit about them with families, is a matter of showing basic



respect and dignity towards them, but also necessary for families to have safe access to the projects and programs we take on together.

Spoken and written material for families at the shelter is always kept at or below a 6th-grade reading level as a matter of access and, in part, to avoid any potential embarrassment of participants. This specific guidance comes from expertise and experience of employees in-shelter and should not be taken to reflect all people experiencing homelessness or even all the people engaged with through this project. Assuming a lack of literacy for an individual is part of a stigma around homelessness, yet occupational research into literacy and homelessness suggests that homeless adults are more likely than the general population to have educational gaps from childhood and, as a consequence, may lack some upper-level functional literacy.<sup>6</sup> It is important to note that such illiteracy is a symptom of a larger systemic societal problem, and can be addressed not by judgment or potentially shame-inducing exposure, but by providing accessible and safe opportunities for engagement.<sup>7</sup>

This being the case, literacy was a matter of design consideration to maximize usefulness and access to our materials while minimizing the possibility of inaccessibility and feelings of self-consciousness and discomfiture that can stem from acute experiences with illiteracy.<sup>8</sup> This is an intentional and transparent design choice on behalf of our partnership to ensure that there is no potential for misunderstanding on important matters, nor is there a possibility for being embarrassed in front of peers. This is a challenging and important barrier for the project to overcome, and creating easily digestible and understandable materials for the audience we intend to work with is a matter of justice and access. Rather than a flawed attempt at “diagnosing” illiteracy on a person-by-person basis, *Science Together* borrows from Universal Design Guidelines and attempts to create materials that can be consumed and used effectively by anyone and everyone present and willing.<sup>9</sup> Many families living in shelter share their family unit inside of a relatively small and open space. This can make engaging virtually challenging, especially when different family members have different things going on in the same room. Bridging the digital divide for *Science Together* often means assuming that anything occurring virtually (synchronously or asynchronously) will either occur on a smartphone, or, if a computer is needed, it will need to be brought to the shelter on loan for the program. Similarly, because of close-quarters, virtual programs required headphones, which many families did not have. Access to headphones with a microphone is a necessary requisite for effectively accessing and participating in programming, and thus the museum buys and distributes them to families as a matter of accessibility.

### ***Narrow your scope***

The role of this project is not to serve an audience that is all homeless people, or all formerly homeless people. The scope is fairly limited to trying to understand and reflect distinct experiences of families experiencing temporary homelessness in Durham, North Carolina. This distinction is important, as we ought to resist the temptation to conflate these experiences with a broad and diverse set of identities and experiences. It is likely that what the authors hear at active listening sessions is different than the experiences of homeless people in other cities, of homeless people without children, or of any of the other many experiences of homelessness not represented here. The project and



programs developed are designed with a specific audience in mind and may be less appropriate, accessible, or desirable outside of this relatively narrow scope. Similar steps from this model may be appropriate to undertake in order to understand priorities, capacity, and values of these other audiences.

## Future directions for work

Though *Science Together* engages with families towards a common goal of combatting stigma about homelessness by working towards making parents and children feel welcome, safe, heard, and wanted, more work on the public-facing side is needed. Museums are highly trusted institutions that can help to inform public opinion and combat harmful and detrimental stigmas, and more work from museums is needed in confronting underlying issues related to and responsible for the crisis of homelessness.

Meaningful engagement with these audiences, however, requires lasting and reciprocal partnership with the stakeholders and the professionals who are already experts in engaging them. It is the hope of the authors that this work and the practices described might help to inform further equitable collaboration with homeless shelters and with homeless families.

## Notes

1. Orenstein, "Homeless? Unhoused? Unsheltered?"
2. Kidd, "Youth Homelessness and Social Stigma."
3. Merritt, "The Museum Sacrifice Measure."
4. Rende et al., "The Privilege of Low Pay"
5. Zimmerman, "Inclusive Investment Starts with Equitable Community Engagement."
6. Grajo et al., "Effectiveness of a Functional Literacy Program."
7. Walker-Dalhouse and Risko, "Homelessness, Poverty, and Children's Literacy Development."
8. Wolf et al., "Patients' Shame and Attitudes Toward Discussing."
9. CAST, "Universal Design for Learning Guidelines."

## Disclosure statement

No potential conflict of interest was reported by the author(s).

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