



Co-Created Public Engagement with Science

PHASE II REPORT – DURHAM CASE STUDY



Rockman et al
Research & Evaluation

Credits

Claire Quimby, external research partner, report author
Rockman et al, www.rockman.com

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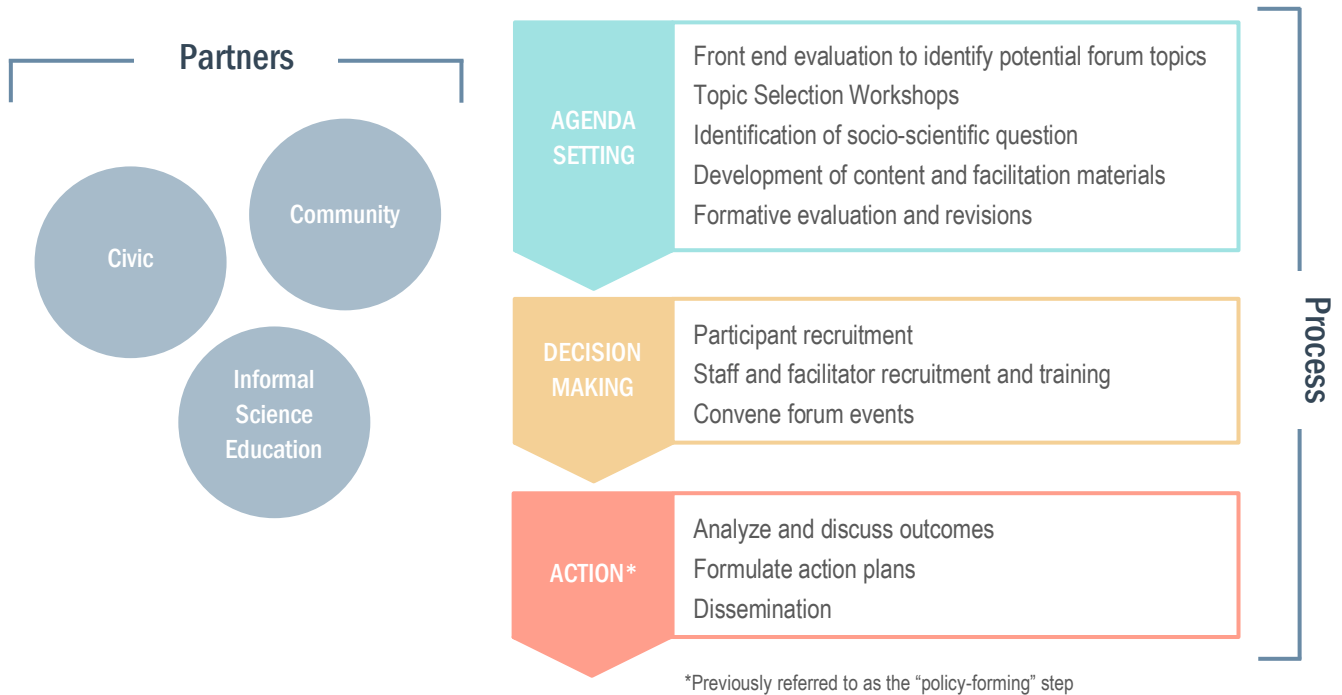
TABLE OF CONTENTS

Introduction	4
Overview of the CC-PES Project.....	5
Research and Evaluation	6
Phase II Overview	8
The Durham Team	8
Project Timeline.....	9
Summary of Activities.....	10
Reflections on Co-Creation	11
Relationship Building	11
Centering Community Voices	13
Finding the Role of Museums in Difficult Social Issues	15
The CC-PES Model in Practice	16
Agenda Setting: Identifying a Topic	16
Decision Making: Designing CC-pes Events.....	18
Action: Defining and Realizing Impact.....	21
Project Impacts – Outcomes for Team Members and Institutions	24
Strengthening Relationships between Organizations and Individuals.....	24
Changing How Communities View Homelessness	25
Changing How Communities View Museums.....	25
Creating PES Events that Promote Real Dialogue.....	26
Professional Growth	27
Building Capacity for CC-PES	29
Concluding Phase II and Looking to Future CC-PES work	30

INTRODUCTION

This report documents impacts and reflections from Phase II of the Co-Created Public Engagement with Science project (CC-PES). Created by the Museum of Science, Boston (MOS) and funded by an NSF Advancing Informal STEM Learning award, the CC-PES project seeks to bring together institutions of informal learning, community organizations, and civic organizations to create opportunities for public dialog that address pressing socio-scientific issues. The CC-PES project has employed the model below to guide teams through the process. In the first step – agenda setting – the teams work to identify a socio-scientific question of importance to their audience and design a forum to address this question. In the second step – decision making – they hold their forum events and facilitate dialog around the topic. The direction of this dialog and the ideas shared then lead into the third step – action – during which the team seeks to affect some form of change around the topic. In sum, the purpose of the CC-PES model is to create productive discussion around topics that are highly relevant to public audiences, to use that dialog to fuel change, and to do this through a collaborative process that recognizes the expertise of stakeholders and audiences beyond the museum staff and science professionals.

Figure 1. CC-PES co-creation model



The CC-PES project was originally planned as a two-phase project. Phase I teams in Boston and Portland would follow the project co-creation model first, followed by Phase II teams in Durham and Detroit who would adapt or modify the process based on learnings from Phase I. Due to the Covid-19 pandemic and the complex reality of community/museum partnerships, the timelines for all teams ended up stretching longer than initially anticipated, and the Detroit team ultimately had to withdraw from the project due to a lack of capacity. The experiences of the

Boston and Portland teams are captured in the Phase I report¹, which describes how each team navigated the co-creation model, the impacts of the project on the professionals involved, and lessons learned about co-creation initiatives. This Phase II report is dedicated to the Durham team, providing another case study of CC-PES in practice. The final section of this report documents the impacts of this project on the professionals and organizations involved.

OVERVIEW OF THE CC-PES PROJECT

The CC-PES project represents the next step in public engagement with science (PES) initiatives led by the Museum of Science. Previous PES projects by the Museum of Science, such as the Multi-Site Public Engagement with Science project (MSPES), created public forums around topics selected by informal science educators (ISEs) and scientists. In the CC-PES project, the public is involved more directly in choosing the topics for discussion, designing the dialog events or other programming, and determining how best to act on the information gathered and viewpoints shared. The three key partners presented in Figure 1 are each seen as bringing important expertise to the co-creation process:

- **Community partners** serve as a liaison to the audiences the projects seek to serve and as experts on these audiences as well as social issues they may face.
- **Civic partners** understand the policy decisions and processes that interact with socio-scientific issues and the ways in which public input can inform policy
- **Informal science education** partners (museums) have experience creating educational public programs on complex issues

The skills and expertise identified in the list above are not exhaustive, but instead summarize the key role of each partner and the rationale for their involvement in this project model. In addition to the project model shown in Figure 1, the teams involved in the CC-PES project have been provided with a roadmap toward their co-creation goals (Figure 2), with key events aligned to the model.

Figure 2. CC-PES Project Roadmap



The steps of this roadmap can be described as follows:

¹ Accessible at <https://www.informalscience.org/co-created-public-engagement-science-phase-i-evaluation-report>

Form partnership – Civic, community, and ISE organizations come together with the goal of co-creating a PES program or event with potential benefits for both them and their audiences/stakeholders

Welcome event – The project is introduced to public audiences and the team begins soliciting ideas for the PES event

Topic selection workshop – Public participants narrow in on specific socio-scientific topics that can be addressed by a public forum and then vote on topics of greatest interest or concern

Forum or other PES event – Members of the public engage in discussion and information sharing with scientists around the chosen topic and weigh possible solutions or courses of action

Action – (Previously called the “policy forming” step) The team explores how public input from the forum/PES event could inform policy decisions or other actions with social/science implications

The teams involved in Phase I and II of the CC-PES project have had the opportunity to test this model and roadmap as one way to tackle co-creation initiatives, but the leadership team at MOS has also emphasized flexibility, encouraging teams to think creatively and find the right solutions for their organizations and particular circumstances. With each new iteration on the model, the CC-PES project hopes to expand our understanding of how co-creation can work and how to support other organizations seeking to take on these initiatives.

Ultimately, the CC-PES project also aims to build capacity for the community, civic, and ISE professionals involved. Some of the key desired outcomes identified in the initial project proposal include increasing...

- Capacity of all partner organizations to create public dialog programs
- Awareness of partnership opportunities with other kinds of organizations and professional relationships to facilitate these
- Interest in creating and promoting PES programs
- Understanding of ISEs as a place to have conversations about socio-scientific issues and gather public input
- Understanding and skills necessary to take on co-creation projects

Additional background information on the CC-PES project can be found in the Phase I report.

RESEARCH AND EVALUATION

This report presents findings from the project's external partner, Rockman et al (REA). REA's role in the CC-PES project has been to document the impact of the project on the professional involved (civic, community, and ISE), track the progress of the teams through the CC-PES model, and report on the lessons learned regarding the co-creation process. An REA researcher has conducted interviews with project team members at key points along their journey, gathering

perspectives from professionals at each organization involved. Interviews have focused on the logistics of designing the various CC-PES events, but also on the ways in which the team partnerships form, evolve, and support the teams' goals. Participants have been invited to give feedback and critique on the CC-PES model as well as the kinds of supports that professionals need to take on co-creation projects. While the Covid-19 pandemic made travel to Phase I project events impossible, easing conditions in 2022 allowed an REA researcher to also observe one of the Durham team's forums in-person.

The CC-PES project also seeks to document impact on public audiences who participate in project events. This research is carried out by the MOS internal evaluation team and is covered in a separate document.

PHASE II OVERVIEW

THE DURHAM TEAM

The partner organizations that comprise the Durham CC-PES team are Families Moving Forward (community partner), the Museum of Life and Science (ISE partner), and Durham Neighborhood Improvement Services (civic partner). Families Moving Forward (FMF) is an emergency shelter and service provider for families experiencing housing insecurity. In addition to helping families find stable housing and become self-reliant, they provide educational services and take a multi-generational approach to supporting families. The Museum of Life and Science is a large science museum that welcomes roughly 360,000 visitors each year. While the museum focuses much of its programming and exhibits on younger visitors, they also run forums and other programs to promote PES and lifelong learning for adults. Durham Neighborhood Improvement Services (NIS) is a civic department that focuses on bringing resources to Durham citizens and collecting feedback on what citizens want and need for their neighborhoods. NIS includes a community engagement team with staff dedicated to different sections of the city.

Figure 3. Durham Team Organizational Partners and their Missions

Families Moving Forward	"Families Moving Forward helps families in the crisis of homelessness find their way home. We provide temporary housing, case management, skills education, and connection to community resources to help parents and children thrive in stable homes." ²
Museum of Life and Science	"The Museum of Life and Science strives to create a place of lifelong learning where people of all ages embrace science as a way of knowing about themselves, their community, and their world." ³
Durham Neighborhood Improvement Services Department	"The Neighborhood Improvement Services Department works to preserve and improve quality of life conditions for Durham residents, and to encourage active participation in neighborhood redevelopment and public policy and decision-making dialogue." ⁴

Families Moving Forward and the Museum of Life and Science already had a relationship prior to embarking on the CC-PES project, consisting primarily of scholarship programs for children to attend MLS camps and reduced or waived visitor fees. These two partners began the project with shared enthusiasm for the work and the ways it could develop into a deeper collaboration serving FMF families. The team brought their civic partner on board later, after their topic selection workshop.

² <https://fmfnc.org/mission>

³ <https://www.lifeandscience.org/our-mission/>

⁴ <https://www.durhamnc.gov/570/Neighborhood-Improvement-Services>

PROJECT TIMELINE

Throughout the CC-PES project, the Durham team has taken a markedly different approach to co-creation than the Boston and Portland teams of Phase I. As noted in the Phase I report, Families Moving Forward and the Museum of Life and Science began collaborating together ahead of the official timeline and activities of the CC-PES project, and their work has included many additional activities beyond the CC-PES roadmap. In comparison to the Phase I teams, the Durham partners have taken much longer to work their way through the CC-PES model, but their work together has also been more sustained.

Table 1. Durham Team Relationship Timeline



SUMMARY OF ACTIVITIES

While the official project timeline scheduled the Durham team kick off for the summer of 2020, the team decided to start meeting and getting to know each other in 2019. In 2020 MLS started offering outreach programs for FMF families in the evenings on a monthly basis – not as part of the grant requirement, but to start building the relationship between their organizations. The team originally planned to hold their welcome event in March of 2020, and the Covid-19 pandemic pushed this back until eventually they hosted a virtual event in December of that year. The museum provided laptops to Families Moving Forward for the event so that families at the shelter could log in for the event. The team designed a hands-on activity centered around the question, “What is your dream for Durham?” Families crafted their responses using drawings, LEGOS, and clay. The team felt the event was a great success for a variety of reasons. It was fun for the families, children of all ages could participate, and they generated creative and personal responses that made an impact on the team and how they perceived the next steps for their project. The team also thought it helped families make a positive connection with the museum, which was an important goal on all sides.

The team used ideas from the welcome event to design a topic selection workshop featuring four different topics for the audience’s consideration: green space, affordable housing, education, and public safety. The topic selection workshop took place over two consecutive evenings in April 2021, with an example forum presented on the first evening, and a dive into the potential topics on the second evening. A local expert on each of these topics prepared a short video that was used as an intro to each topic and led into group discussions in breakout rooms. Event participants were recruited via the museum’s mailing lists, but a few families from FMF participated as well.

After affordable housing emerged as the topic of greatest interest, the team held a number of listening sessions with adults from FMF to find out what aspects of this topic families thought it was most important to address. After each listening session, they would take time to process the responses and bring their findings back to FMF families so they could confirm that the team was on track for progress. The team repeated this process as they developed their forum concept and activities, using a highly iterative process that was driven by FMF input.

The final forum designed by the team included four game-like activities, each centered around an important question regarding affordable housing and fair practices. They held three forums during the month of October – one at the museum, one at a public library, and another at a local community center. The team decided to compensate forum participants and received a strong turnout at each event and robust conversations.

The Durham team’s action activity has been a series of ongoing efforts rather than a single event. In 2022, they completed a guidebook for families to use when discussing homelessness with children. The decision to create this resource grew directly out of a need expressed by FMF families, who said they didn’t know how to discuss this very difficult moment in their lives with their children. In addition to this guidebook, the team has held book readings, met with city council members, and produced other resources – all of which represent their continuing resolve to share information that can lead to change.

REFLECTIONS ON CO-CREATION

The Durham team used the same CC-PES roadmap to guide their project, yet their experience along the way has been remarkably different than those of the Boston and Portland teams. Many of the lessons from Phase I of the project have been carried through to this phase, but with a new spin. The close relationship of the Durham team and the extended nature of their work together present a new way for thinking about co-creation. The focus on a very particular audience – families in Durham experiencing homelessness – is also new in this case study. Finally, external contextual factors also led to a very different experience. Most notably, the Covid-19 pandemic in the United States began at roughly the same time the team had planned their welcome event. While it forced this event and the topic selection workshop online, the pandemic was waning by the time the team hosted their forums. The following pages summarize some key contributions the Durham team has made to our understanding of CC-PES and the project model.

RELATIONSHIP BUILDING

The strength of the relationship built between the members of the Durham team and their respective organizations has been a defining feature of this phase of the CC-PES project. Team members from FMF and MLS have written about their approach to their work in the *Journal of Museum Education*.⁵ This article provides an excellent overview of how the relationship between these organizations was built and how they design informal science education experiences for a particularly vulnerable population. There are many reasons the relationship between MLS and FMF has been successful, but two important components are 1) the genuine interest they share in designing meaningful programming with and for FMF families, and 2) treating their work together as an ongoing collaboration rather than a temporary checklist of activities.

These features of the Durham team partnership were apparent in team interviews from the earliest months of the project. A team member from Families Moving Forward described their interest in the project by stating:

The Museum of Life and Science actually reached out to us with an interest in our families. That is rare, and because they took that step, I was all in. Because a lot of people don't – they're not here for the feedback from our families - families experiencing homelessness... And the fact they were interested in our families and their feedback and their input and wanted to work with our families – I was definitely on board for that.

Team members from the Museum of Life and Science also emphasized that this project was an opportunity to demonstrate a deeper commitment to working with a community organization – to go beyond “short term events or quick advising sessions.” One individual, when asked about

⁵ Max Cawley, Tasha Melvin, Jenna Gant, Stepheny Hine, Ashley Robbins, Peregrine Bratschi & Imani Vincent (2022) Science Together: Co-Creating Meaningful Informal Science Education Experiences Between a Science Center and a Temporary Homeless Shelter – A Case Study, *Journal of Museum Education*, 47:3, 301-309, DOI: 10.1080/10598650.2022.2097990

why the museum and FMF began working together well ahead of the CC-PES project timeline, stated:

*I honestly think that there was a real risk we didn't want to take, of being a run-of-the-mill non-profit or science institution working with an extremely vulnerable population and then come in, do the work, go out, and not really have any relationship. I think it was really important for us to make that impression on the families at Families Moving Forward and on the people that work there - that we're not just going to go in cold when the project starts. **We're going to go in before our phase begins and start up this cadence of programs that will last after the project ends.***

The team has worked to uphold this commitment in many ways over the past several years. The ongoing science programs that MLS offers for FMF families are one example. During the holiday season in 2021, the project team also helped FMF with delivering gifts to families. One team member offered the following wisdom on these kinds of collaborations:

*I guess that would be a piece of advice that I offer. Don't let the project be the main focus of interaction with whoever you're working with. Definitely take on different initiatives, whether it be something that your organization came up with or whether it's a need that another organization needs, just **being there to let them know that you are a consistent presence.***

While the team's dedication to their partnership and FMF families set them up for success, there were also unique challenges to navigate. They had to consider how to best serve and involve the FMF audiences over the long term when most of the families spend about four months at the shelter. Since it wasn't reasonable to expect individual families to be involved in the project from start to finish, the team used its series of listening sessions to make sure the direction of their project was aligned with the experiences of this community, even as the specific members changed. The staff at FMF also served as representatives and experts on the families they serve and the topic of homelessness, in the same way that some Phase I community partners served as the voice of the individuals and groups they served.

Another challenge for the Durham team was the turnover in staff at both the Museum of Life Science and Families Moving Forward. Each time someone departed, the team noted that their progress slowed. The FMF team representative for the project was an AmeriCorps Vista member – a temporary position at FMF that welcomed a new person each year. A leading staff member at FMF noted that they would hesitate to take on a similar project in the future if they didn't have a permanent staff member to serve as a liaison.

Fortunately, the Durham team found that each new AmeriCorps member brought enthusiasm and commitment to the work. Many also brought background experience that made them natural fits for the project – for example, experience in research and policy or in informal education. The MLS team also experienced staff changes, but was fortunate to keep its leading member for the duration of the project. Team members cited this individual's consistent presence, their knowledge of the project history, and the trust they had built between the organizations – as a critical aspect of the team's success. The team's overall perspective on their

work as an ongoing commitment rather than a checklist or deadline may have also helped them persist through staff changes and delays.

In the early years of the project, the Durham team operated more or less without a civic partner. Once Neighborhood Improvement Services (NIS) was brought on board for the project, the team member representing this organization provided similar critical expertise as the civic partners in Phase I – knowledge of city policies and processes that directly intertwined with the Durham team’s topic of interest. The individual from NIS who worked with the Durham team also had considerable experience in soliciting and listening to public feedback, in addition to a background in community organizing - all of which supported the project goals.

CENTERING COMMUNITY VOICES

Phase I of the CC-PES project demonstrated that a museum’s ability to build trusting relationships with community organizations is closely related to the extent to which they center the voices of the people those organizations serve. Organizations like Families Moving Forward consider this principle so central to their work that it is unlikely their relationship with the Museum of Life and Science team would have thrived without it. As one FMF team member stated early in the project:

*I need the museum to meet us where we are, and to make sure that all our families can access the curriculum in a way that everyone feels they can be engaged and involved and honored and recognized... That's important to me... **Yes, we're working on this project, but our families aren't the project.** We are on the same field here. It's equal power. Our families are just as an important stakeholder in the project as the museum is.*

In their interviews, members of the Durham team repeatedly stressed the importance of listening – really listening – to what their partners have to say. They noted that it's easy to go into a project thinking you know something about what a community might need or to accidentally make assumptions about their experiences or the best way to approach a problem. Throughout the project, the team made their best efforts to not fall into these habits.

Their attention to this principle paid off, and team members from FMF spoke positively about the way museum staff actively listened to the voices of the FMF families and held themselves accountable in their partnership. “Everyone from the museum is super respectful of the families,” one individual stated. “Sometimes when you say homeless – sometimes volunteers might treat families differently. But I don’t feel like people from the museum have done that at all.” Another staff member from FMF talked about the expectations they set for their own staff in the way they treat their families – for example, taking a strengths-based approach that focuses on families’ skills and assets, rather than focusing on shortcomings. This staff member said they witnessed MLS staff using this same approach, and it gave them the confidence to trust these team members in their interactions with FMF families.

Centering the voices of the community also goes beyond displaying respect to acknowledging the expertise they possess. All members of the Durham team underlined this point repeatedly in their project interviews:

I think a lot of times, the way our field is designed, the people who are like in these fancy institutions are often the ones who are centered as experts when they're not actually the ones with the most expertise... People experiencing homelessness have so much information and lived experience around this issue, that certainly makes them far more qualified to do this work than we might be.

One way of acknowledging this expertise is to pay for individuals' time, and the Durham team made a commitment to this practice. Participants in each of the team's main CC-PES events were compensated. Any time the team requested input from FMF families – whether through listening sessions or in reviewing resources that the team created – they paid them for their contributions. FMF staff pointed out that compensating the families they work with is a matter of racial and social equity:

One of the harms that we have created in our society is that we do not value the time or expertise of those with lived experience. *And the way that shows up is, 'I want all your information, but I'm not going to pay you for it... Your time is valuable for me to do this work, but I'm not going to pay you for it.' And that's what we're saying when we don't incentivize.*

The point raised in this statement is especially salient for grant-funded projects that are led by large institutions serving vulnerable communities. Not only is it important to recognize the expertise these audiences bring, but it is also important to compensate for that expertise in the same ways that those with higher professional or social standing are compensated.

A final note about participant compensation: one staff member from FMF made sure to emphasize that while the payments were extremely helpful to the families they serve, these individuals gave their time because they were motivated to share their stories and contribute to the project's cause. Many times, they noted, FMF families would sign up for the CC-PES events before any incentive had been announced.

Staff at FMF were critical in helping their museum team members find the best ways to reach and serve the project's target communities – for example, relaying the barriers that might keep families from attending project events, making sure written materials were provided at the right reading level, knowing the supports their families needed for some of the difficult conversations to be had, and pointing out the potential pitfalls in addressing the topic of homelessness. One FMF team member noted that getting the families they serve to participate in a project like this can be a fraught process:

Our families have so much on their plates, it's really hard for them at times to prioritize, because they feel that they don't have the power to say no. And so we want to make sure that we give space for them to opt out. But also encourage them to feel comfortable opting in and participating.

This person pointed out that because FMF provides services to these families, they can feel obligated to jump through hoops for the organization and participate in events whether or not they truly have the capacity. Making sure the MLS team members understood these dynamics was important as they designed events together. An FMF team member described their roles as

being a protector of and advocate for the families they work with. In doing so, they created the most positive environment possible for those individuals to share their insights and feedback.

FINDING THE ROLE OF MUSEUMS IN DIFFICULT SOCIAL ISSUES

Recognizing the primacy of the community's voice can also raise questions about the roles of the other partners. When the Durham team settled on the topic of affordable housing, team members from the Museum of Life and Science sometimes had moments of doubt about their ability to contribute meaningfully to the topic. As an educational topic, affordable housing is far removed from the usual content that MLS addresses, and most team members had no direct experience working with families who had experienced homelessness. One individual reflected on what it was like to go into a completely new topic and design a forum around it:

*...Technically and emotionally complex topics - climate change, affordable housing - it can be really intimidating and hard to learn about something for the first time, or to recognize that you don't really know very much. And that was the case was having to step in and realize, like **we've set this up so that they so that our community partner can choose anything that's important to them. And what they've chosen is something that I don't know anything about.***

Phase I teams sometimes had similar angst when the topics their participants identified began to stray from their traditional science content into social science territory. In the end, however, the Durham team found their confidence in demonstrating that social science *is* science, and data and research are deeply entwined in the topic of affordable housing. The team made a point to emphasize the connections between science and housing policy when introducing the forum to participants:

The work that planners do, the work that people who study social interaction, or public space and things like that. That's all science. And that all informs how we build and plan cities and ultimately, how we prepare for and actually house people.

Drawing out and explaining the role of science in socio-scientific issues is one way that museums and other ISEs can present the expertise they bring to these projects alongside the expertise of their community and civic partners, who naturally have a better sense of the social aspects of topics like homelessness. In thinking about their contributions to the project, the MLS team members also felt reassured when they reflected on the skills they brought as educators and facilitators:

We're centering the people who have the expertise in the room, and opening up a seat at the table for them to share that expertise, and oftentimes, we're the facilitators of that [dialog] as the museum because we might not necessarily know all the things, but we have connections and can create programs along with the experts to engage the public with the information that we're trying to give out.

The team's civic partner also noted that the process the museum brought to the project, via the CC-PES grant, was different than what either the community or civic institutions would have come up with on their own:

It's definitely a different approach than my department would take... They're basically using the scientific method and starting from that place of inquiry. It's a different perspective. It's a different process. I really have liked the whole co-creative aspect of it. And the scenarios that we're doing are very inventive and creative. I think there is that level of like creativity in the work as well.

By incorporating the CC-PES model, as well as certain informal educational practices that are almost second-nature in museum programming, the MLS team was able to put a different spin on the conversations surrounding affordable housing – a topic that was very familiar to their community and civic partners but which these partners hadn't seen handled in this particular way. The team's civic partner expressed anxiousness over the kind of participation they might see in the forum. They cited examples from their own work where community meetings were often derailed by unhappy citizens and people typically showed more interest in voicing existing opinions rather than engaging with new ideas. Overwhelmingly, though, the Durham team's forums were characterized by productive and engaged conversation. One team member reflected, "That's how we framed the event at the beginning, and that's the kind of dialog people wanted to have."

The overall success of the Durham team's work shows that museums should not shy away from these difficult topics, even if at first glance they seem beyond a museum's area of expertise. At no point did the community partner question whether the museum could successfully contribute to their work together. Reflecting on the involvement of MLS, one individual noted, "I do think that it takes like a degree of courage to tackle this type of topic, from an institution like the Museum of Life and Science. I totally respect that."

THE CC-PES MODEL IN PRACTICE

The Durham team followed the same roadmap (Figure 2, p. 5) as the teams in Phase I. Just like the Portland and Boston teams, the Durham team found its own spin on programs and processes outlined in the model.

AGENDA SETTING: IDENTIFYING A TOPIC

Starting Off and Setting the Tone

The Durham team took a multi-step approach to identifying their forum topic, and a lead representative from FMF talked about how the gradual build up was perfect for their families. The simple, family-friendly welcome event the team organized and the level of information covered during the topic selection workshop introduced the project ideas without overwhelming participants with complex tasks. The FMF staff also liked the way these events incorporated creativity and participant engagement, as opposed to leaning on lectures and presentations.

Listening Sessions

During the topic selection workshop, the issue of affordable housing drew the most interest from participants. The team knew, however, that they had to find a way to narrow their focus further in order to design a forum experience. The team decided to hold additional listening sessions with families from FMF in order to see what kinds of topics within the umbrella of affordable housing were most important and relevant. Many ideas emerged from these discussions:

- Health and safety
- Health and safety of children
- Landlord accountability and governmental accountability
- Renovating old structure for housing versus building new
- The barriers to getting housed

The team felt the listening sessions were incredibly valuable because they allowed the team to really hear about the authentic experiences of those who had been affected by these issues. One team member described the experience, saying, "It gave us an opportunity to just focus on that [affordable housing], and to give people the opportunity to be honest and vulnerable about their experiences and about their values and priorities with it." The team devised basic, open-ended questions for the listening sessions – questions that allowed lots of space for the conversation to flow where participants wanted it to. In this way, they let the families be the drivers of the conversation.

The listening sessions conducted by the Durham team represent an example of their deep commitment to centering community voices, but the team didn't have specific guidance on how to conduct these. There were many questions along the way. During the rounds of listening sessions that the team held with the FMF families, one team member wondered if the team might be taking things too slowly out of a fear of making a misstep. Others worried that in their efforts to get things right, they might wear out their participants with repeated questions or processes. A team member from FMF made two helpful recommendations for these kinds of activities: first, not holding listening sessions on the same topic with the same people more than once, and second, following up with participants afterward to let them know where things stand.

The Durham team also talked about the challenge in confronting issues of homelessness for the first time. The listening sessions forced some team members to grapple with difficult realities on a new level. At the same time, participants who shared their stories had to relive and describe some very personal and emotional experiences. After the first session, an FMF team member made sure that a therapist and a social worker were on hand for support in case they might be needed.

Slowing Down for Deliberative Process

The Durham team spent a considerable amount of time with their agenda-setting process, taking time to process the information shared at each listening session, then sharing that information back to the individuals at FMF to make sure they were capturing what those individuals wanted to convey. They repeated this process two or three times before feeling

satisfied they had truly aligned their project with the views of FMF families. One team member noted that sometimes it felt like they had come to a standstill as they waited for the right person at FMF to be able to weigh in on decisions, but they felt this was the right way to proceed. “We’re very mindful of making sure that we’re always going back to the families and letting them know what we’re thinking and how we want to move forward, so that they are a part of the process,” they stated. While not all co-creation teams may have the time for this approach, the Durham team’s dedication to this process was their way of upholding their co-creation goals. In the earliest interviews with their team members, an individual from FMF stated:

In the meeting with the museum yesterday, they talked about how they hoped that through a process – it’s not like one group finding an issue or naming an issue – but through a process the issue will emerge organically, and I thought that was really thought-provoking, and I appreciated them saying that because I think it reinforces the idea of co-creation but also the idea that this is a process and that we are going to work together on it and it’s not one person who is higher. It’s equal ground.

At the same time, some members of the team wondered if they could have been a little more confident in their abilities to translate the families’ input into action. Knowing the right balance of caution and progress can be difficult.

Civic Partner Contributions

Having a civic partner weigh in was another critical part of the topic selection process for the Durham team. Like the Phase I teams, Durham’s civic partner understood local housing policies and debates, what had been tried before, what might be possible in the future, and which ideas were “non-starters.” Rent-control, for example, is a hot topic of discussion in Durham, but there are state laws against this practice, so hosting a discussion around this idea would have been unproductive. By leaning on the expertise of Neighborhood Improvement Services, the team felt they were able to approach their topic with an eye towards what was achievable, instead of making false promises to the audiences they wanted to serve through their project.

A Place for Children

Another important question for the Durham team during the agenda setting process was how to continue involving children in the project. Engaging whole families was an important goal for the team from the project’s outset, but they found they had to adjust their approach when it came to the listening sessions. Adults could not fully open up to speak about the difficult issues around homelessness when their children were present, and the topic was also technical and elevated in ways that would make it difficult for children to participate. As a solution, the team found ways to provide alternative activities for children while their parents and guardians engaged in those discussions.

DECISION MAKING: DESIGNING CC-PES EVENTS

Aligning Decisions to Audience Feedback

Once their ideas surrounding affordable housing were narrowed down, the Durham team took a considerable amount of time to design their forum. Pandemic interruptions and staff

changeovers slowed their process, but the team also wanted to be deliberative – making sure at each step that their direction was aligned to the feedback they had received from FMF families. Members of the Durham team talked about how important it was to let these families' experiences lead the way. “We literally, like, started from scratch, said one team member. “We just heard what they wanted, or what they needed, and created our forum around them. That was really, really important.” In this way, the forum design process for Durham might be considered more directly co-created than the forums in Phase I.

Planning for Engagement

The team considered many options for the structure of the event, including some that were abandoned – such as having FMF families serve as facilitators and having a forum that engaged both children and adults. Eventually, the team decided that having FMF families facilitate discussions would be an unfair imposition, especially since program facilitation is a skill that ISEs are supposed to bring to the project. A family-focused forum was also ruled out, because they knew it would not allow adult participants to engage as deeply with the issues they wanted to discuss. In the end, the team created a forum that used four hands-on activities to engage participants in discussion around the following questions:

- What should be on a housing application and what should not?
- In a lease agreement, which responsibilities should belong to the landlord, and which should fall on the tenant?
- Is it better to build new housing or renovate old to combat the housing supply problem in Durham?
- What does affordable housing mean? How do we define it, and how *should* it be defined?

The forum was carefully designed to focus less on presentations and more on opportunities for participants to share their own experiences. “We learn from our peers, not presenters,” the forum host emphasized in their opening address. After a short introduction on the housing crisis in Durham, the forum broke participants into small groups to work through the activities together. The activities the team designed were almost game-like, with cards and chips to manipulate as they considered the issues at hand. One team member reflected that people seemed to really enjoy this tactile aspect of the experience. Having objects to handle and pass around seemed to boost engagement, giving people something to do in addition to the dialog. The team also intentionally incorporated moments in the activities where participants were handed new information to consider, which might sway their opinions – or not. Overall, the forum took two hours. This ended up being just enough time for the activities, and not too much time for the participants.

Roles of the Civic and Community Partners

Once the forum activities were outlined, the Durham team consulted with experts in housing issues and policy to fill in some of the important technical information, including a member of the Durham planning commission, their civic partner at Neighborhood Improvement Services, and a faculty member at North Carolina Central University. The team talked about how valuable it was to have these various sources of input. Being able to lean on each of these

different experts helped them feel secure that the materials they were producing had been vetted and were a worthy educational tool to use with public audiences.

When it came to actually drafting the forum materials and scripts, the Phase I teams of the CC-PES project let the museum partners take the lead, given their previous experience with this program format. In Durham, however, the community partner played a closer role in the forum development. The FMF team member took the lead in designing one of the forum activities, drawing on their previous experience designing and leading educational programs. They also were able to tie in real-life experiences of the FMF families in creating the activity scenarios, as well as their own experiences as a tenant in Durham.

Audience

Ultimately, the Durham team decided to hold multiple forums at different locations in order to reach a wide range of audiences. Team members noted that the setting almost certainly influenced the dynamic of participants at each location – for example, people engage differently at museums events where the setting feels somewhat special or outside their daily routine, as compared to a community center or library that they visit more frequently. The library forum also ended up attracting several drop-in participants, unlike the other locations where all participants were recruited ahead of time.

Like their previous events, the Durham team decided to compensate participants for their time. This also allowed them to screen participants to try to involve a diverse group of people. The team's civic partner helped them think about this strategy, based on their previous work bringing together community members for discussions. "If you don't know who's responding," they noted, "you don't know who you're missing." In the end, the team was pleased that they were successfully able to attract participants who were very representative of Durham in terms of race/ethnicity and socio-economic status.

Throughout Phase I of the CC-PES project, there was somewhat of an assumption that the same target audiences who took part in the welcome events and topic selection workshop would also be the audience for forums. They may not be the exact same group of people, but they would represent the same kinds of communities. In Portland, for example, the team maintained a focus on young adults. In Boston, the diverse and non-traditional student body of the Urban College of Boston was a main target audience. In Durham, the team shifted away from this approach. The FMF families were viewed as the co-creators of the forum experience, but they were not the intended audience. As the activities came together, the team began to envision them as a tool for teaching others – those who had not experienced homelessness – about the issues surrounding affordable housing. Ultimately, the team found that because their forum attracted a diverse range of participants, the lessons it had for individuals were different based on their personal backgrounds – but this ultimately made the discussions more powerful. Some information presented through the forum was familiar to certain participants, which opened the door for them to talk about difficulties they had experienced in their own lives relating to housing. Other information was not familiar, and the team hoped by shedding light on certain aspects of housing policy they would help participants feel empowered.

The team had also considered inviting elected officials and policymakers to the forums so they could directly hear the experiences of participants, but they ultimately decided it would change

the nature of the conversation too much. If decision-makers were in the room, people might feel pressured to make arguments or take a particular stance, as opposed to engaging in a dialog and considering alternative points of view.

In trying to make the forum as accessible as possible, the Durham team also decided to translate the forum materials into Spanish and recruit Spanish-speaking participants. Two Spanish-speaking individuals attended the first forum held at MLS. Although the team's civic partner was able to translate for this group, they ultimately felt the experience wasn't as rich for these participants, who couldn't engage in dialog with the larger group of participants. Nevertheless, they said the two Spanish-speaking participants stayed after the event to talk and asked about when the next one would be. Based on this experience, the team recommends holding Spanish-only forums to reach these audiences rather than trying to host bilingual events, and they plan to do so in the future.

ACTION: DEFINING AND REALIZING IMPACT

Interpreting the Action Step

The final step of the CC-PES model is finding a way to take action around the selected topic, and this is the step that gave the Phase I teams the greatest difficulty. The Boston and Portland teams didn't feel that the discussions generated by the forums pointed toward any decisive form of action, and they struggled for some time to interpret this step of the model in a way that would work for their individual situations, ultimately landing on activities that provided additional education on the issues and support to members of the public who might like to take action in their own lives.

One recommendation from project leadership was that teams should consider the action step early on in their process, so that their forum could be designed in a way that led naturally into some form of action. However, the Durham team, like the Portland and Boston teams before, found it difficult to think about their action step during the forum design process. Some team members expressed doubts that a museum *could* do anything to take action on such a difficult social issue. Other individuals were more optimistic and talked about different ways to achieve this step of the process – such as speaking at city council meetings or supporting FMF families to do so.

Information and Advocacy

Some museums may not feel comfortable getting involved in public policy discussions, but members of the Durham team said they can see a role for museums as allies and advocates on human rights issues like those addressed by their forum. The team also views their forums as taking action in certain regards. One team member noted:

There's evidence that people who consider issues related to affordable housing in their towns for the first time are more likely later on to be active in supporting policies related to those. That's an important outcome unto itself.

The Durham team has reached a considerable number of people through their forums, but they have also found other ways to spread information and encourage dialog about affordable

housing. One of these ways is through a family guide that the team created to serve an immediate need they observed during their work with FMF families: a way for parents and caregivers to talk about homelessness with their children. The guide was created with the input of FMF families, and the team had 250 of them printed and handed out to FMF families and other families around Durham, helping facilitate the difficult conversations that adults and children need to have together when a family becomes homeless or when a child asks questions about homelessness.

The team also created a one-page introductory document to the topic of homelessness in Durham, with key terminology explained. In their own research to prepare for the forum, they learned just how difficult it was to locate and understand information available on affordable housing. Their one-pager on affordable housing in Durham is designed to solve this problem and provide an accessible way for larger audiences to engage with the issue – perhaps for the first time.

In addition to producing these new resources, the team Durham team has:

- Conducted public readings of the book *The Fair Housing Five and the Haunted House*, at libraries and other community venues in order to continue creating ways to talk about housing and homelessness with children. This book, written by the Greater New Orleans Fair Housing Action Center, deals with the topic of housing discrimination in a way that is accessible to young audiences.
- Produced video recordings of the book read in both Spanish and English and made these accessible through QR codes posted at libraries.
- Presented on the project before the InterNeighborhood Council of Durham – a coalition of neighborhood organizations and homeowner associations that advocates for stronger, healthier neighborhoods.
- Shared forum results with members of the Durham City Council. Team members think it was especially helpful for council members to hear that it is possible to have productive conversations about such a difficult topic – especially when they tend to have more experience with heated debates and unhappy citizens. Council members were also interested to learn that the interest in affordable housing goes deeper than the surface buzz the topic tends to generate in Durham.
- Hosted an additional forum at the North Carolina State Library with an audience of college students and other adults.
- Presented forum findings back to Legal Aid of North Carolina – one of the partners who provided expert input on the forum materials. Legal Aid is now planning workshops on tenants' rights at both the museum and Families Moving Forward.
- Enlisted a graphic designer to help package the forum materials and family guidebook so that they can be shared widely with other teams and organizations seeking to spark conversations in their own neighborhoods.

Ideas for the Future and Reflections on Creating Change

The list above is not the end for the team, who still have other ideas they would like to pursue. One is to host the forum entirely in Spanish. Another is to invite the Families Moving Forward board members to take part in the forum so that they have a more direct understanding of the struggles that FMF families face and the dilemmas of affordable housing in Durham. The team's interviews show that they are far from viewing their work as done. "I think if we continue on this path, we definitely could make a bigger impact in the area," one individual stated.

In the end, one team member said they view this project's ability to influence policy in the same way they view the educational outcomes of museums. They noted that people often don't credit museums for "the pretty transformative things that we know museums have the capacity to do," because a single museum visit is one of many experiences that contributes to a person's educational journey. In the same way, they didn't expect to see a specific law or policy change as a direct result of their project. Instead, they view the team's work as contributing to an ecosystem of information and advocacy in support of better housing practices. When asked what they are most proud of from their work on the CC-PES project, many Durham team members talked about these resources and how happy they are to provide information that can advance the dialog on these important issues.

Some team members, however, continue to wonder if there aren't other, more "tangible" ways the project can lead to action. The civic partner, who comes from a background of community organizing, talked about how the models for community action that they are familiar with focus on identifying specific, "winnable" goals, and then organizing efforts around these. They wondered if there are ways the CC-PES model can operate similarly. As an example, they brought up a small area in the Hayti district – one of Durham's historic African-American neighborhoods – that is slated for development. The potential development is raising lots of questions about what will be built and whom it will serve. Community meetings on this are a possible place where information from the CC-PES forums might find its place for influencing decision-makers. "I think it would be a question of picking one policy thing," the civic partner reflected, "and then deciding 'What is the role of this project in asking for something?'" Another team member acknowledged that this kind of action would require careful consideration, because the team would have to get approval on any statements that might be seen as representing the museum's stance. They would also need to consider how to also present the perspectives of the families they are seeking to serve.

PROJECT IMPACTS – OUTCOMES FOR TEAM MEMBERS AND INSTITUTIONS

As of Spring 2023, the Museum of Life and Science and Families Moving Forward had been working together for four years. Neighborhood Improvement Services joined on later, but was nevertheless a critical arm of the team from 2021 forward. The changes below are some of the most meaningful impacts team members highlighted while reflecting back on the years of work together.

STRENGTHENING RELATIONSHIPS BETWEEN ORGANIZATIONS AND INDIVIDUALS

The strong relationship between Families Moving Forward and the Museum of Life and Science is certainly the most obvious impact of the Durham team's work. While the relationship between these organizations didn't begin with the CC-PES project, team members have stated that this project became the impetus to take their work together to a much deeper level. One team member noted that prior to this project, they had experienced difficulty getting financial and institutional support from MLS to pursue these types of collaborative partnerships. Now, the work between MLS and FMF is treated as a given. Neither party has any intent to sunset their activities together.

In 2021, the Museum of Life and Science was chosen by Families Moving Forward as their outstanding partner of the year. Also in 2021, an FMF employee at FMF whose temporary position had ended moved on to take a position at MLS. Not only did this strengthen the ties between the two organizations, it suggests that the museum values the expertise of individuals who have worked with people experiencing homelessness. Another museum team member noted that since FMF provided training in trauma-informed care, the museum is now benefiting from that valuable skillset.

Team members from the project have also talked about the way they personally have benefitted from the relationships it has fostered. "It's been helpful to broaden my network of people that I work with," said the team's civic partner. This individual's job responsibilities are largely focused on community engagement work, and they noted that the relationships built through the CC-PES project have made that work easier. For example, a team member from MLS did a series of STEM outreach days at one of the housing projects assigned to the civic partner. Having a direct connection with FMF has also been helpful to Neighborhood Improvement Services, as they are located within this individual's assigned district. On the other side, the civic partner noted that they can now serve as a networking resource to museum staff when they are looking to make connections with city officials.

Individuals at Families Moving Forward also feel that they have benefitted from the relationships forged during the project. "I definitely have partners at the museum, and people that I can reach out to if I need things," said one team member. More broadly, one team member said that just having to opportunity to connect with people in other organizations who have different

viewpoints and engage in different kinds of work is beneficial for expanding their professional point of view. "Being able to have the space and opportunity to actually talk to people outside of your usual group, I think is worthwhile and very beneficial to everyone," they said.

CHANGING HOW COMMUNITIES VIEW HOMELESSNESS

An important project goal for many members of the Durham team has been to change how people view homelessness and the families who experience it. This impact has been felt directly within the team. Team members from MLS talked about how the project and the families they have worked with have tremendously expanded their understanding of homelessness. This experience was both challenging and rewarding. One team member described it, saying:

There are really, really wonderful pieces where sometimes we get to know families, and then we get to see them move into housing, and we get to talk to them about what that is like. And that's, that's a really incredible experience that I didn't think I would have through a project like this.

The process of creating the forum materials and preparing to facilitate these for audiences was also a tremendous learning experience for the team. "I have so much more knowledge now than I did a year, a year and a half ago," one team member said, "just because of the amount of research that the whole team did to make sure we were presenting current information." This individual said that their new understanding has even carried through to conversations in their personal life. When they talk about these issues with family members and others, they feel better informed and can also ask better questions. While a lot of the learning took place on the museum team's side, a key team member from FMF said it had expanded their viewpoint on homelessness as well. Thanks to the many opportunities to learn from FMF families, forum participants, and project advisors, they have a better understanding of the housing crisis in Durham and the multitude of challenges that people face.

Beyond the project team, participants at each of the CC-PES events has had the opportunity to learn about homelessness and affordable housing. In designing the forum activities, one FMF team said they wanted to be able to show audiences how it was easier than they might assume to become homeless – that there are forces working against families and pitfalls in the housing world that can knock people down, even when they have a full-time job. Another talked about the goal of building participants' empathy for people experiencing homelessness, so that participants might become allies later on. Evidence from the forums (discussed below, p. 26, and in forthcoming MOS reports), suggests the team has been successful in shifting people's points of view on these topics.

CHANGING HOW COMMUNITIES VIEW MUSEUMS

At the outset of the CC-PES project, many team members talked about their hope that this project would help museums reach communities who don't necessarily visit museums often or who might think the museum isn't for them. One individual stated in their initial interview:

A goal I have is to make sure the museum and science spaces are for everyone and that folks that we're working with (families experiencing homelessness) look

at the museum as a place for them... I want people to feel empowered to go to any museum and any space and feel like they own that space as well.

This sentiment was expressed by a team member from FMF, who said they were happy to learn that team members from MLS had similar hopes. They noted that some more educated families they serve might already feel comfortable in museums, but they wanted this feeling to extend to all families. Several individuals said that they think the project has helped FMF families see the museum differently, and maybe see science differently as well:

Being on this project has really opened my eyes, to really see that, yes, science can be anything that you can imagine, even if you can't imagine it, you can somehow tie it to science. And I think what's also really cool about this project, too, is the fact that even though it's science-related, they still try to make it accessible to everyone. So not even trying to think about being a scientist and thinking about saying stuff with big words and things of that nature. It's simply about the fact of, you know, we want to make it public, create more public engagement, so people can have a better understanding of themselves and the community that they live in.

Forging connections between museums and the communities that directly surround them is important work. The Durham team's civic partner noted that the Museum of Life and Science is very near to low-income housing as well as areas that are being gentrified. They talked about how this project has the potential to forge more positive relationships with local residents and change how communities perceive the museum. One team member from FMF reflected on how the project has even changed their own viewpoint of the museum and their viewpoint of museums in general:

Before I thought of museums mostly as, you know, just informing the public about whatever they're about – history or science or whatever it is. But museums also do research projects, which I guess I knew, but now I could see that firsthand. And you know the direct work that museums are doing – researching and creating things. I think it was really interesting. And I didn't know before.

Because of the CC-PES project, this individual has a new perspective on the museum as a more dynamic environment – one that doesn't just relay information to the outside world, but one that engages with the outside world.

CREATING PES EVENTS THAT PROMOTE REAL DIALOGUE

Another important outcome that Durham team members described was the sense of accomplishment they got in hearing authentic, engaged conversations from participants at their forums. Everyone who attended the forums talked about the high level of engagement between participants, with energetic conversations that continued on even after the activities were complete. Part of the success of the forums is likely owed to the way the team designed the activities to be hands-on and participant-led. The almost game-like design of the forum really encouraged participants to dive into the topics and discuss the details together.

I thought that each activity created like, really effective and interesting dialogue. They did not all end in consensus, which is okay. They did not all end with everybody having the same opinion, or swaying people into different opinions. Some of them necessarily needed to end in a vote. And again, that's an interesting outcome unto itself. – Durham team member

Both the Durham team and REA's researcher observed the educational value of the forums in the way participants reacted to the information presented as well as to each other's experiences and stories. In one example, there was an audible gasp from the audience at the first forum event when the presenter explained the technical definition of affordable housing in Durham – a definition which did not at all match most participants' perceptions. "It was really powerful to see how surprising and troubling that was to people," one team member reflected. Moments like these showed the team that they were conveying powerful information that had direct relevance to participants' lives.

The team also witnessed shifts in participants' understanding and awareness during the table conversations. Some participants would balk at the scenarios presented in the activities – for example, a housing application that required tenants to prove their monthly income was at least three times the amount of the rent. Other participants would then speak up to verify how these scenarios aligned with their own life experiences or provide similar examples to the issue being discussed.

Participant reactions to forum activity scenarios

- My landlord just did that to me.*
- That's a scam!*
- That's hard, but that's normal.*
- There's nothing I can do but play these people's [landlords'] games.*
- This is why we need tenants' unions.*

The team also witnessed many people sharing vulnerable and personal stories, indicating the forum felt like a safe environment for difficult discussions. People talked about incarcerated family members, undocumented family members, their financial struggles, and the many other hurdles they experienced in finding housing in Durham. The forum also successfully brought together people with different life experiences. Some people attending were associated with universities or white-collar work and higher income levels and some came from low-income communities. While the forum audiences tended to be more sympathetic to tenants' situations, at least one landlord attended one of the forums and spoke to a team member later about what a valuable experience it had been. The last forum also included one youth participant – a teenager who came with their parents.

All of these elements contributed to the team's perception of a successful forum and made them feel as though their hard work had paid off.

PROFESSIONAL GROWTH

Members of the Durham team were able to describe a multitude of ways the CC-PES project has impacted them in their professional lives and the ways they approach their work. As noted

above (p. 13), centering community voices and community expertise was an important principle for the team's work together, and several project members talked about this as one of the project's learning experiences:

For me, one of the bigger things I feel like I've had the opportunity to learn is active and empathetic listening... making sure you're ready to listen and fulfill what's being asked of you by the community partner.

Another team member talked about how this project, and one team member in particular, helped them unlearn some of their previous ideas about who is considered an expert:

I think it was really incredible for me to actually see it demonstrated and modeled... [Team member] does an incredible job of that - highlighting people and bringing the right people to the table and elevating people's voices that are the most necessary in this process. So I'm really proud to get to work with [them] and really see and be a part of that process.

While they said they understood and believed in the idea of community expertise in an abstract sense before, being part of this project has allowed them to put it into practice. In a related example, one team member talked about their initial doubts when an FMF staff member suggested that museum team members lead the listening sessions that led up to their forum. Further experience showed them, however, that this was an intentional choice driven by FMF's understanding of their audience. This was one of the many ways that project team members learned to trust each other's knowledge and skillsets.

The project has also helped team members build other special skills related to public programs and gathering public feedback. Two individuals – a museum partner and an FMF partner – talked about the new facilitation strategies they learned through their work, never having been part of a public forum before. Another individual talked about the team's publication as a proud accomplishment in their professional journey.

Finally, some team members even said that being part of the CC-PES project and the collaborations between these organizations has given them clarity around their future career paths.

I think that this was definitely like a career shaping thing to be a part of... This project allowed me to really solidify my interest in informal education and my dedication to continuing my career in this way, because it is so important, and it gets really wonderful outcomes – or at least we were able to get some really amazing outcomes.

I'm truly grateful to have been on this project, because it's definitely given me more perspective on what I want to do and where I see my career and everything going.

Being part of the CC-PES project has helped these individuals to see the value in the work they are doing and has renewed their dedication to it.

BUILDING CAPACITY FOR CC-PES

Many of the examples of professional growth above are also directly tied to a main goal of the project: to build capacity for co-created public engagement with science. In learning to center community voices, seeing what it looks like to value new kinds of expertise, and practicing forum facilitation, team members are building their capacity for future work in this area.

On the museum side, one team member said that partnering with Neighborhood Improvement Services has been “transformative” in showing them how the city goes about doing outreach and soliciting public input through a process that is not unlike public engagement with science:

The amount that I have gotten to learn about how public input turns into or informs policy has been really, really, really important in thinking more and better around how the museum can be involved in these sorts of projects.

Another member of the museum team talked about how the participant-driven approach of the project has carried over into other areas of their work – for example, designing educational programs for school groups and other audiences:

I think a lot about like, ‘Okay, this is what this is what the teacher has booked this program for, how can I create as much opportunity for choice and voice in these programs? So it’s not just me dictating what the program sheet says that I need to dictate - it’s more about pulling from them what’s important to them, finding a way to connect to something that is really critically important.

The team’s civic partner also said the project’s approach has had an influence on how they view their work, giving them and their office ideas on how they can be more participatory in their own approaches, “instead of just having four people sitting up at the front and people asking questions of them, which is what we typically do.” This team member also said that the project offered them the opportunity to think about civic engagement from an academic perspective, which was a welcome break from the sometimes-discouraging work of listening to disgruntled community members at public hearings.

The team’s civic partner noted that while they were familiar with co-creation practices before being brought onto this project, being part of the CC-PES team in Durham exposed them to the idea of public engagement with science and how it related to their work with the city. “Just thinking about how this is related to social sciences – I never really thought of that before, even though that’s what I went to school for. And then like, what other kinds of partners are out there when we think about science?” They said they are now thinking about their work with schools and community gardens from a new, science-oriented angle. One of the team members from FMF had a similar reaction, describing an increased appreciation for the real-world applications of social science.

Many of the project partners started with at least some understanding of the terms “co-creation” or “public engagement with science,” and sometimes with both. On the community side, Families Moving Forward staff were already familiar with the idea of directly involving community members in the creation of program and valuing their expertise. On the museum side, public engagement with science was a familiar concept for many, and co-creation was

perhaps at least an idea they had heard of. All team members, however, said their understanding of these ideas was expanded by the practical experience of having lived this project together.

CONCLUDING PHASE II AND LOOKING TO FUTURE CC-PES WORK

As noted above, the work between Families Moving Forward, Neighborhood Improvement Services, and the Museum of Life and Science is not over. The team members are continuing to plan activities addressing affordable housing, while also looking for other ways to collaborate and support each other's work. Meanwhile, the CC-PES project is awarding smaller stipends to nine different museums across the United States to see if they can compress the CC-PES roadmap down to six months. The following lessons are some of the key takeaways from the first two phases of the CC-PES project that may help these museums and other organizations who are interested in co-creating together.

Building relationships and trust is important above all else. – Organizations need to understand each other's goals, priorities, and values to work effectively together. They need to demonstrate a commitment that goes beyond a single funding cycle or project goalpost. They need to show respect for each other's audiences.

The process is more important than the product. – While teams may have an end goal in mind for their co-creation work, the success of the project is defined more by how a team works together than by a specific achievement at the end.

Equitable co-creation relationships find ways to share power and decision making. – This is the crux of the "co" in co-creation. Partners need to know their voice, and the voice of their constituents, holds weight.

The roadmap should be flexible. – When partners decide to share power, they have to be able to relinquish control of where a project might take them and let the needs of their particular context and audience take precedence.

Be willing to lean on each other's expertise. - Co-creation projects don't depend on each team member sharing equal responsibility in each task along the way. The Boston, Portland, and Durham teams have all found that the civic, community, and museum partners bring different strengths to the table and that their projects are made stronger by playing to those strengths.

Truly collaborative work on socio—scientific issues can lead into new and uncomfortable territory... and that can be good. While some museum staff may feel uncertain about tackling social issue topics, with the right partners they can make important contributions to the conversation – as educators, as conveners, and as experts in making difficult information understandable.

The "action" step of CC-PES can take many forms. The Durham team found new ways to present and share information on affordable housing, including resources for families and presentations in front of civic groups. Their advocacy through information is one way museums can take action around socio-scientific topics.