

MakingConnections Project

Community Relationship Group Narrative



Play Tinker Make

An Exploration of Communities and Making

Summaries of the Making Connections Project and Play Tinker Make Activities
at the Science Museum of Minnesota.



Thank You

With deep gratitude to the over 250 community members who contributed their time, energy, and voices to the deep learning and change associated with this project.

Special thanks to the entire project team at the Science Museum of Minnesota for their commitment to Making Connections (in alphabetical order): Chris Bauer, Marjorie Bequette, Keith Braafladt, Lauren Causey, Joe Imholte, Paul Martin, Eric Mueller, Rich Pennington, Joanne Jones-Rizzi, Robby Callahan Schreiber, and Gina Navoa Svarovsky. Many others helped support our efforts and we are grateful for their assistance.

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Introduction

We began Making Connections in 2013 with a vision of a collaboration between museum staff and community members, between researchers and practitioners, to examine hands-on *making* in museums through a lens of cultural relevance and equity. Our work was grounded in our lived experience as makers, researchers, and museum employees, and for some of us, as women of color. Our hope was for change at our own institution, the Science Museum of Minnesota, within the St. Paul community, and across the field of museums.

In these documents, we asked project team members to describe the nature of their work. This document is intended as support for other practitioners who might want to:

- conceptualize *making* as an equity practice, instead of a practice grounded in white visions of craft, tinkering, and engineering
- create activities for use in a museum or other public setting by working thoughtfully with community members, grounded in their priorities and practices
- use the activities we developed in the project and understand why they were created in the first place
- facilitate conversations with community members for long-term change in an organization
- use a strong community engagement strategy for research projects.

At the end of the project, we feel proud of the work of the teams, both within and beyond our museum, to shift our vision of making and of our museum from one dominated by an existing paradigm, to one that is open to more perspectives.

We could not have done this project without the work of many people beyond the Science Museum of Minnesota, including Ebony Coles, Dawn Burns, Anura & Rekhet Si-Asar, Ankhet Hesi-Ra, Ruby Lee, Bondo Nyembwe, Kathey Denman-Wilke, Aaneesah Amatullah, Janelle Vang, Merina Neal, Yer Moua Lor, Maria Maggie. Staff at SMM beyond the project team also contributed in significant ways throughout the work and we thank them as well.

Good luck in your making and equity work, and please feel free to share questions, challenges, successes, and failures, with us.

Marjorie Bequette | Lauren Causey | Gina Navoa Svarovsky

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Project Background

All communities have Makers, but not all communities have been actively included in the more recently branded Maker movement. While for years science centers and museums throughout the United States have identified a need to increase the diversity of their audiences, they have struggled to make significant headway toward this goal. The Making Connections project aimed to contest the homogeneity of the Maker Movement, which has a primarily white, male, and middle/upper-middle class following. Recognizing the museum's historical underinvestment in relationships with members of communities of color and American Indian communities in the Minneapolis/St. Paul metro area, we also sought to develop more intentional relationships with family groups who identified as such.

MakingConnections was an applied research project that sought to explore three specific areas:

- 1) developing and implementing culturally relevant Maker experiences;
- 2) developing effective methods for communicating and sustaining relationships with underrepresented audiences; and
- 3) applying a systems-based, cross-institutional and community-grounded approach to both of these challenges.

Through this project we explored strategies for inviting more racially/ethnically diverse audiences to participate in Maker activities and events at the museum. Drawing on well-developed community engagement techniques, **Making Connections** examined a cross-institutional, and community-grounded approach to broadening participation in Making for people who identified as African American or of African descent, Latinx, Hispanic, American Indian (primarily Dakota and Ojibwe), and Hmong (originally identified in the grant proposal as "communities of color").

The project included four staff groups (Research & Evaluation in Learning, Public Programs, Marketing, Community Engagement) who worked collaboratively to explore two main hypotheses:

- 1) that an approach based on diverse perspectives from within the museum yet centering community perspectives for engaging underserved audiences will be effective and
- 2) that members of underserved communities will feel more connected to STEM after participating in the study and attending the related events

Our community engagement work focused on inviting a core group of Community Partners to be leaders within the project. We worked closely with them to recruit and support family groups to participate. We used a metaphor of a skeleton and a body to describe the work we would do together. We called the project framework developed by museum staff (the timeline, the Making activities, the activity phases) the skeleton. This was already built by the time community members joined the project. But we shared that we needed their input and support to build out the rest of the metaphorical body. We emphasized that we needed their critical feedback in order to better understand how we as an institution were either meeting or not meeting their needs.

We centered our work on an informal framework of authentic community engagement values and practices developed and documented by then Community Engagement Director, Joanne Jones-Rizzi, in 2010. The principles of Authentic Community Engagement are:

Authentic Community Engagement:

1. Recognizes, and makes legible, the power dynamics inherent in the exchange of resources between large cultural institutions and smaller community-based organizations.
2. Is centered on interactions with people in organizations outside of the museum. It requires relationships that are based in honesty and trust, (which takes time) with clearly stated motivations and goals.
3. Is the basis of a healthy and sustainable ecology of participation wherein there is a reciprocal relationship between the museum and community. The vitality and culture of the museum is dependent upon the participation of community members as leaders, staff, program participants, volunteers, educators, advocates, and visitors. The vitality and culture of community organizations is enhanced by access to museum resources, and participation in initiatives, conversations, activities and processes that inform and influence the work of the museum.

We began the project with Inward Work, examining underlying assumptions, clarifying roles and vocabulary, and setting preliminary goals. Our Outward Work then progressed in three stages:



Stage 1. Community Listening Sessions, to begin building trust; to understand families' at-home Making practices.

Stage 2. Co-Design Workshops, to continue establishing mutual understandings of Making; to incubate ideas for the Play. Tinker. Make program.

Stage 3. Saturday Showcase Days, to provide activity facilitation opportunities to participants; to encourage more independence in museum visits.

We also planned a final celebration to mark the end of the project and share some of our findings with the family groups.



Inward Work

Pre-work. Rejecting the status quo.

Before the first project participant was even recruited, the **Making Connections** team did some heavy theoretical work. We considered the long-term changes that might result from the project, and why they were needed—not only at the Science Museum of Minnesota (SMM) but across our informal science education field. This work included the creation of a Theory of Change, a visual (Appendix A) that included our fundamental assumptions and aspirations about Making and future project participants and visitors who identify as people of color and/or American Indian.

- The work dovetailed with museum strategic planning efforts. The Senior VP of Science Learning, Paul Martin coined the phrase: “We need to be more valuable to more people.” This created tension (mostly healthy) that ran through the project. It became a proxy for all the deep institutional work required for the museum to become a more racially equitable organization.
- Our Theory of Change statement/graphic aligned the work within the museum’s mission and vision and even served to challenge the museum to deepen its commitment to racial equity.

During this initial phase, we immersed ourselves in literature and conversation supporting the need for a plurality of voices in the emerging Making community, and we discussed our own attitudes about hands-on activities as we tried out new activities together.

- In early planning meetings we intentionally created group norms, recognizing project team members were coming from four different departments and thus four different work cultures.
- We developed a mantra: “We are the community and the community is us.” This meant that SMM would not be “serving” the community with our effort, because SMM and the community members outlined as project partners and participants would be one and the same.
- Museum staff on the project did Making together to start project team meetings. This helped to establish us as makers whether or not we defined ourselves as such.
- We explored research and presentation(s), including work by Leah Buechley. Buechley has explored the socialized understanding of who is a Maker (often seen as white male, and academically and financially privileged).

Establishing shared understanding of roles, project team norms & language

It was essential to learn how to work with each other across our departmental boundaries. While we were comfortable and experienced working within our departmental teams, this project required us to work across departments in new and different ways. In initial planning meetings we mapped out the work and examined our roles. Understanding the systems that governed and dictated our ways of working led to increased empathy as we learned to work together. Finally, being involved in a research study was new for the community engagement, public programming and marketing group members. This prompted us to spend considerable time discussing how to utilize data to inform our decisions throughout the project.

The team collectively set norms for how we shared meeting space. We articulated ways of engaging with each other, acknowledging that we came from different departmental work cultures within the museum. Starting meetings with a Making activity forced us to situate ourselves as Makers, recognizing the importance of modeling a commitment to the project content.

While we didn't keep this practice up through the entire project, it served as a great community builder for the project team.

We developed shared language around key terms, an essential step in the pre-work process. Here are some of the terms we spent significant time discussing and defining for ourselves.

Communities of color: We began with identifying our audience/participants as members of communities of color. Our understanding of the exclusivity and insensitivity of this identifying phrase evolved throughout the project. *First, we learned to avoid using this phrase in a way that suggests communities of color are a monolith. We added more specificity about who we were working with, that is, people who identify as African American or otherwise of African descent, Hispanic, Latino, Dakota, Ojibwe, or Hmong.*

“They think they are celebrating Latinos when we are 21 countries; we need to celebrate all the diversity. They think if they celebrate cinco de mayo they did a good job—I’m not Mexican.”

- We first used the phrase “members of communities of color” to identify the project audience/participants.
- Next, we shifted to saying “communities of color and American Indian communities.” This was based on direct feedback from our Community Partners. An American Indian partner (Saginaw Chippewa Tribe) provided insight into her community by sharing that many American Indian people don't identify as people of color due to the unique political relationship Tribes have with the U.S. government.
- Then we shifted to articulating the racial/ethnic representations of our participants more specifically, saying “African American and people of African descent, Hispanic, Latino*, Dakota, Ojibwe, Hmong, or American Indian.”
- Direct feedback from two Community Partners post-project: *So we agree with “underrepresented or underserved communities” with the additional naming of the specific communities as they define themselves. We think the term “people of color” is on the way out. For African Americans, the term Black is on its way out too. In its place is “African,” “African-American,” and people of African descent or heritage. This is to include the recent immigrants over the past five generations or since the 1970s.*

We also emphasized in all of our materials that we were recruiting participants simply based on their identification as members of communities of color or American Indian communities, and that this terminology was not synonymous with “low income.” Participants ranged from people who were long-time museum members to those who had never visited the museum.

Family group: The borders that delineate who is and who isn't family differ for different people. To accommodate this, we defined "family group" in an expansive sense, including multiple generations, cultures, languages, and home addresses within one group. Participants joined the project in family groups as they defined them, rather than fitting into a definition pre-determined by museum project staff. We did run into a conflict with how our ticketing database tracked family groups as households - see more details in *Concluding Thoughts* section.

Make/Maker/Making: The uppercase, branded "Maker" language does not resonate with everyone. In fact, the contemporary Maker movement as presented by *Make* magazine presents a very male and very Euro-centric white persona. To be as clear as possible about our efforts and to recognize that making has been going on in cultures throughout history, we instead used words and phrases like "hacer" (Spanish), "hands-on activities", "doing things with your hands", "built, fixed, created, customized, tinkered with." When asked, participants gave us more language, such as exploring, experimentation, being a doer, hobbies, and creativity. We explored doing a direct translation of Making into Spanish as a matter of inclusive language. In consulting with one of our community partners we learned the word "hacer" does not clearly translate to making so we didn't feel comfortable using that word as the sole translation. It would have forced people into a specific understanding of Making and it would have run counter to our intentions to increase awareness, understanding, and engagement with making. We also centered the practice of hands-on, personally significant Making throughout the project. For example, at our first community partner meeting we invited the partners to bring in something they made that was significant to them. We also started many project team meetings with Making activities.

Outward Work

In this section we will follow the development of the project in chronological order, from our recruitment of Community Partners to our final celebration.

For each phase we will discuss:

- **What we did**, describing planning and implementation in each phase;
- **Why we did it**, discussing the philosophy and values that underlay our work or drove our decision making. Throughout, we aimed for the following: to be transparent; to critically analyze the museum's historical interaction (or lack thereof) with African American, African, Latinx, Hmong, and American Indian communities; to de-center our expertise; to build bridges and relationships; to invite and engage; to be generative rather than transactional; and to recognize that both the Museum and our family partners have assets and expertise;
- **If you try this...** The guide part of this document: If we did this again, this is how we'd do it. If you're trying to do this work, this is what we'd recommend.

Recruiting Community Partners

“For me the propaganda of the museum was not good until I met Robby and Rich through the KAYSC afterschool program they provided at my school.”

What we did

- Recruited ten individuals over the course of January-May 2014 as Community Partners. Selection was based on relationships individuals already held with the museum or a museum staff member, some sort of social connection, either from previous museum projects and programs or from relationships held by some of our colleagues.
- Developed a budget to support partners’ work: meeting materials, food & beverage, and honorarium for each partner (each partner received \$3000 for their two years of participation in the project).
- Onboarded them as museum volunteers, granting them easier access to the museum, parking privileges, and discounts at the box office and museum shop.
- Used intentionally broad terminology from proposal, “Communities of color,” while recruiting.
- Created a [community partner 1-pager](#) (Appendix B) to better explain the role to potential partners

Why we did it

For many years members of racially marginalized communities, such as African Americans, have experienced studies by researchers ON or ABOUT the community rather than WITH the community. One example is the Tuskegee experiment in which African Americans were the subjects of medical research about which they were not fully informed. Experiences such as this have resulted in historical trauma and a general mistrust of researchers in the community.

Our Community Partners were a bridge between the museum and the communities with whom we wanted to build trust and collaboration. These are the words we used to describe the role of Community Partner: Bridge - Collaborator - Advisor - Facilitator - Trust Builder. We wanted people to hold multiple roles in the project. This is why we decided that they would not be *traditional* volunteers. While they received traditional volunteer benefits, they would be paid professionals working with us. We recognized the potential collective impact of a core group directly from, and having a stake in, the communities we sought as partners. While Community Partners supported us as a bridge they also helped check our institutional bias. We began to realize the importance of their presence early in the project while creating our Theory of Change.

If you try this...

Brainstorm selection of potential Community Partners within your project management group. Be sure that the Community Partner reflects the community where they live or work. We tried to recruit Community Partners who had a stake in the community or who advocated for their community. Start with partners with whom you already have a connection through previous successful collaborations. Use your existing social capital if you have already created a presence in a certain community. If possible, staff who already have connections should reach out first to set up the partnership. Museum staff who recruit partners do not need to share the same racial or ethnic background as those they're recruiting.

Create a project document that provides a brief description, a timeline of engagement, roles/commitment, and information on compensation (monetary and in-kind) ([community partner 1-pager](#)) (Appendix B). If a community partner has to drop out, work with them to find their replacement within their community. We spent a considerable amount of time deciding how to describe partner roles. Be flexible and ready to adapt project documentation to reflect the Community Partners' ideas and suggestions, especially as they relate to project descriptions and project timeline.

Community Partner Meetings

What we did

- Initially scheduled six meetings over the course of two years. We ultimately held nine meetings between May 2014 and May 2016.
- Planned meeting content and objectives.

We started each meeting doing a Play Tinker Make activity in order to model and experience the Making process. Developed by our Learning Technologies Center (now called Learning Technology Experiences) staff, these design- and play-based activities are experimental, fun, and intended to create opportunities for open-ended exploration. Examples include [Cardboard Sandles](#), Pop up cards, [Wire Sculptures](#), Tiny Drawings, [Cardboard Animation](#), [DIY Cookie Cutters](#)

- We shared food and stories, using the time to strengthen our relationships.
 - We provided project plans and updates to keep everyone informed; we discussed work accomplished since our previous meeting and made plans for upcoming activities and events.
 - We requested and received feedback and input from Community Partners about project developments
- Invited and involved other members of the project team. They participated in the meetings as follows:
 - Research team members: Taking notes to document how things were progressing. Talking through planned data collection activities to get feedback. Sharing what they were seeing once there were data available (e.g. attendance reports and themes from surveys and interviews).

- Marketing team members: Meeting the partners and soliciting their input on project marketing plan.
- Programming team members: Meeting the partners, sharing Play Tinker Make activities, describing the Activity Design Workshops.
- Spent time between meetings staying in touch with Community Partners via email, phone, and text message. Each partner had a preferred mode and style of communication which we learned as we developed closer relationships with them.

Why we did it

These regular meetings reinforced and modeled our intention to do research WITH the communities and not ON them. Community Partners checked our organizational biases and pointed out gaps and flaws that we did not notice as we planned updates and activities. Once family group participants began visiting the museum we also had to create opportunities to talk with the partners about the “Collisions” that some families experienced. We will discuss these challenges and collisions in our *Concluding Thoughts* section.

If you try this...

Start meetings with a making activity or some other activity relevant to community building. The hands-on activities kept all of us--museum staff and Community Partners-- grounded in the project's main content. It also reinforced the relationship of the Community Engagement staff with Programming staff. And Programming staff were more informed by Community Partners to develop the Maker activities best suited to this project.

Share food and create time and space at each meeting for people (partners & staff) to provide personal and project related updates. Encourage staff not involved in each meeting to stop in and check in with partners. These seemingly simple strategies communicate respect for all partners and create bonds between partners and staff and among the partners themselves.

To open clear lines of communication among partners and staff, create a staff contact list with pictures, contact information and description of their work in case Community Partners would like to contact them.

Family Group Registration Session

What we did

- Held four project registration and informational sessions within one month (August 2014) at the Science Museum. We set up a table near the museum entrance and welcomed participants and directed them to a meeting space away from public spaces.
- Presented a PowerPoint describing the project and distributed printed handout.
- Representatives from all project teams participated in the sessions and were available to answer questions about their portion of the project.
- We provided food and childcare in a very social setting and invited families to engage with Play. Tinker. Make. activities throughout the session.

- Created a special badge to provide official status and access for the adult members of each family group. These badges, similar to those of staff and volunteers but labeled “Making Connections,” granted free access to the museum, parking privileges, and discounts at the box office and museum shop.
- Allotted time and invited family groups to explore museum after the meeting.
- Ensured that most project staff were present. Project staff’s presence indicated a commitment to the project, prioritized the relationships and worked to build trust amongst the families.

Why we did it

Family Registration days provided opportunities for families to experience the museum and to meet museum staff connected with the project. The Community Engagement staff led each event, because they would be closely connected to the families over the course of the project. Other museum project staff introduced their work through informational tables.

This was the first step in building trust and rapport with communities. We wanted to create a safe space of the families as well as let communities learn what the project was about. This was a time to have face to face interactions and set the stage for the rest of the project.

If you try this...

Provide time for families to register initially and to understand the structure of the project. We created a Family Group one-pager (see Appendix C) to provide written description of the project and their role in it. We found that the social nature of the registration sessions was integral to their success. They were structured, scaffolded, but not overly planned out (see Appendix D).

The welcome table and the provision of food and child care created an environment that encouraged and supported the families’ initial participation. Due to timing, families might skip a meal to attend so we tried to provide nourishing food.

Make sure that representatives from all aspects of the project are available throughout the registration and meeting to answer any questions or provide information on their involvement. Schedule multiple times throughout the session to provide an introduction and share project details as an Open House style may work better than an event with a firm start and end time. Families may already have prior commitments that overlap with the session. Schedule multiple registration sessions with a variety of days and times to accommodate various participant lifestyles. While we didn’t try this with our project, it might also be helpful to hold a registration session or two outside the museum to reach people where they are more comfortable. Documents should be available in multiple languages for accessibility; but they should not be separate documents.

Develop a document (we created a 1-page handout- see Appendix E) that explains how participants can access the museum through the life of the project.

Listening Sessions

What we did

- Community Partners facilitated 11 Listening sessions in August and September 2014. Some were hosted at the museum while others were hosted in community locations.
- Developed project specific questions regarding views and attitudes about the museum.
- Community Partners hosted a listening session for participants they had recruited either in their community or at the museum. We supported Community Partners leading Listening Sessions, providing physical space if needed.
- Created a youth-centered space for middle and high school aged young people to provide their input.
- Involved minimal staff attendance: only essential staff; Community Engagement staff and support staff within the evaluation and research department to take notes.
- Drawing from Appreciative Inquiry principles we created a [Listening Session 1-page document](#) (see Appendix F) that Community Partners could use to facilitate the session.

Why we did it

We wanted to build relationships through actively listening. We hoped to create a safe space for Community Partners and Family Participants to discuss their views of the museum - what the museum was doing right to welcome them, and what the museum needed to re-think. We wanted to hear how they were experiencing the making and educational activities. This also gave the museum a way to explore our Theory of Change, specifically the sections:

- “SMM learns our value to individuals in Communities of Color”
- “SMM learns more about existing broad values in Communities of Color”
- “SMM learns more about attitudes towards STEM in Communities of Color”

Listening Sessions created a space for communities to voice their thoughts and opinions without someone trying to justify things on behalf of the museum. By holding Listening Sessions early in the project, we were able to see where we had unfounded assumptions about our communities; we were able to identify our initial biases and better understand the directions we needed to take.

If you try this...

Work with your Community Partners to develop questions that allow participants to give honest feedback about your organization. Have either Community Partners or family participants lead the sessions. Encourage the session leaders to organize the meeting to maximize comfort: e.g., host the session somewhere in the community, in a language other than English if the community group is more comfortable with that and in a format that is culturally familiar, etc. Send only pertinent museum staff so that the meeting is community focused. In our case staff played a silent role, documenting the conversation. Offer space at

your institution if there is not community space, and budget for food as meetings are often scheduled during lunch or dinner hours.

After the listening sessions make sure that multiple departments hear a synthesis of the feedback—positive and negative. Sharing the data in this way felt like a responsible next step, especially for departments that directly engage with visitors. Also, provide an incentive for people to participate in the focus group/listening session. For the focus group, this wasn't in the plan at first, but a community partner suggested it and pointed out that those who attended the listening sessions were indeed providing data and should receive the same stipend as if they'd completed a survey.

Activity Design Workshops

What we did

In November and December 2014, Community Partners and participants were invited to come to three workshops led by our Programming team. We held these on 2 Saturday mornings and one afternoon. In these we hoped our partners would share their ideas about concepts or materials that would culturally express their idea of Making. They also provided insights into how to introduce and facilitate activities for the groups they represented. At the same time the Programming team shared current Making ideas, adapting or creating new activities that aligned more appropriately with the making traditions of the Community Partners and Family Participants. Our lead programmer worked with his team and project participants to explore “making” ideas, concepts, and activities together. He shared “making” activities that were used in the galleries and invited project participants to come with their own ideas for sharing and exploration. Through “making” together they merged some ideas in a way that fit the way the museum facilitated activities on the museum floor and were more culturally attuned to a greater diversity of audiences. When the activities were ready they would be tested during a Saturday Showcase. The ultimate goal was to have them become a part of the repertoire of facilitated activities on the museum floor outside of Saturday Showcases.

Why we did it

Making means different things to different communities. Our partners demonstrated both interpretations and methods of making that were different from the standard Maker approach. The workshops provided a space for participants to tell and show us these differences, to demonstrate their knowledge and experience. In turn we used this time to show how we did Making at the museum.

These workshops provided an opportunity for our participants to take a leading role in co-designing activities with our lead programmer and his crew. These activities were to be used in upcoming Saturday Showcase events. These collaborative events strengthened our partnerships with the community and helped us reshape our idea of Making. We were also able to explore the Theory of Change, specifically in providing communities a stake in what happens on the museum floor.

If you try this...

Be sure to plan collaborative workshop meetings where your participants can share their Maker traditions and can be in dialogue with your Maker Programming staff. These meetings are crucial to your Programming staff coming to understand culturally different ideas and methods of Making. The workshops are also an opportunity for your partners to learn how the museum has usually created Maker activities, and to experience first-hand that the museum is adapting and/or creating new activities that reflect a broader cultural understanding of Making.

Work closely with your programming staff to discuss communication strategies and techniques to invite and engage the family groups. We had numerous formal and informal meetings with our programming staff to ensure a smooth transition from families joining the project to participating in the workshops. Due to the various communication styles of participants it is incredibly important to broaden your expectations of how best to communicate with participants. This necessitates being responsive to the participants varying communication styles - be prepared to email, text, phone call, and even use social media to communicate.

Finally, take time to consider the transfer of ownership of the (activity) ideas participants bring to program staff. Clearly state the intentions of idea sharing and the parameters for how participant ideas might be utilized. Gain an understanding of how the participants want their ideas represented. Invite participants to be the facilitators of their activity before having others facilitate the activity. In hindsight, we did not have a closed feedback loop in which the idea generators were told why the museum chose not to use their ideas. Exercise your best judgement for what to do when these circumstances occur. You could use the community partner as a bridge to help decide about the activity and to help share the news if it's not up to the project's standards - or, provide some recommendations for making the activity a better fit.

Family Group Open House

What we did

Between the Activity Design Workshops and the Saturday Showcases we invited family participants, Community Partners, and museum project staff to two open houses (December 2014 and February 2015) to stay connected to us and the project.

- Welcome table set up at entrance for family participants (see Appendix G) Purpose:
 - Sign-in (double check contact info)
 - Receive project materials (if any, also created bilingually)
 - Orient new families (things they may have missed in the registration session)
 - Receive museum wristbands
 - Receive guide to meeting space
 - Receive badges (if they had not received them before)
- We provided information on the research portion of the project.
- Space set for family participants away from other museum visitors.
- Spanish speaking staff were present at table with buttons that identify "I speak Spanish" (or pictures for families to know who they are if needed).
- PowerPoint set-up with project information (calendar, project pieces, etc.).
- Hands-on activities for families to tinker with.
- We worked with Marketing department to create project styled posters and table signs.
- Research data collection station set up in space to gather project data (5th grade & younger).
 - More data collection space for 6th grade and up set in separate space.

Why we did it

We wanted the communities we were working with to see the museum as a resource. We hoped they would become more integrated into the museum and the project. The open houses served to help families get more acclimated and connected to the museum and to stay connected during the months between the Listening Sessions (late Summer-early Fall) and the Saturday Showcases (early Spring).

We had some specific goals:

1. Re-orient Participants. There were some new families and also some who were not able to make earlier registration sessions, so this was a space utilized to get everyone on the same page.
2. Check in with all who were part of the project. Families were able to meet and socialize with other families as well as connect with Community Partners and museum- based staff.
3. Provide a time to check out the museum itself. Family connections to the museum varied from those who had never attended, feeling it was “not for them,” to those with long-time memberships.
4. Allow museum evaluators to collect data from the families.

If you try this...

Use this as an opportunity to reconnect with Partners and Families who have been active participants all along as well as with new registrants or families who have missed previous activities. Those who missed the initial family registration session can be given IRB¹ consent forms and badges. If you have participants with varying previous relationships to the museum, this is a chance to reinforce your welcome and to encourage exploring the museum. Your project evaluators can meet with families in the meeting space you have set up which is a bit apart from the public spaces. Be sure to have bilingual or multilingual staff available and clearly identified.

Saturday Showcases

What we did

In Spring (2015) and in Fall (2015) we invited families to participate in eight Saturday Showcase days. These were similar to the open houses, as they occurred during Play Tinker Make Saturday afternoons, but they specifically highlighted the “making” activities that were generated through the Activity Design Workshops. We also invited families who participated in the workshops to facilitate an activity in the museum galleries.

As preparation for these days we:

- Created and distributed flyers through Community Partners.
- Sent invitations through emails and mailed folder packets to family groups also inviting them to bring non-registered friends and family.

¹ An IRB [institutional review board] is a committee that performs ethical review of proposed research. <https://www.hhs.gov/ohrp/irbs-and-assurances.html>

- Asked Community Partners to directly invite their family group participants.
- Set up a lobby check in table (see Appendix G).
- Hosted an activity close to check in table.
- Collected surveys at check in table.
- Gave gift cards to families who completed a survey.
- Provided map of activity locations in the galleries.
- Designated box office for families to receive their own tickets.
- Provided free admission for friends who came along with families

Why we did it

We wanted families to experience the museum, but more specifically engage with the Play Tinker Make activities and complete a survey to add to the research data. They get the full museum experience from getting tickets, to navigating the exhibits, exploring Making on the floor, and more. As usual we worked to create a safe space by providing a check-in table staffed with familiar faces. But being involved in a regular museum program enabled them to step outside of this space to explore the museum and interact with staff who were not a part of the project.

We made a more concerted effort to invite people to these events than originally planned due to some attrition in participation and a significant gap in project events. We created folders of project information that included information about the upcoming Saturday Showcases, other museum programs and events, another FAQ sheet about how to use their project badges to access the free admission and parking. We mailed these folders to each adult family group member.

If you try this...what we recommend

Invite families through multiple channels:

- directly from Community Partners,
- marketing efforts,
- e-mails to all participants, and
- mail invitations (with accompanying information as desired) as well.

Encourage families to bring in other friends or family who have not visited the museum or are not connected to the specific project. Set up an easily located and staffed welcoming table or space. Utilize museum volunteers for staffing support if you have the capacity. Staff or volunteers could even provide support with translating if/when needed. Invite families to check out the museum, some of the activity stations provided, and then to come past the welcome table before they leave to fill out a survey or provide some other form of feedback. Provide incentives for family members to complete the survey or feedback activity. Create an activity map to help families generally navigate the space and, more specifically to navigate to the specific areas where you'd like them to focus. Invite family groups to host/facilitate an activity within the galleries.

Final Celebration

What we did

In hosting a final celebration for all participants in June 2016 we:

- Kept the experience similar to their previous visits: Open Houses and Saturday Showcases.
- Shared a visual and oral presentation of the project from start to finish that included:
 - Images from throughout the project.
 - Project highlights
 - Short overview of the data we had collected.
- Shared opportunities for Community Partners and Families to stay connected as SMM volunteers; we created a new volunteer role.
- We shared membership opportunities for individuals who wanted to continue to come to the museum outside of the project.

Why we did it

We wanted to show our gratitude for the contributions of all the family group participants and to celebrate all that we had accomplished together. We shared what we had gathered from our research, both what we had learned from our collaboration with them and what we planned to do at the museum based on this new knowledge. Knowing that many partnerships end when funding stops, we shared ways to continue our relationship and to stay connected to the Science Museum. This included sharing information about our Great Tix limited income discount access, discounted and full priced memberships, volunteer opportunities, and other museum program opportunities.

If you try this...

Plan to involve participants more actively throughout the project. Our celebration event was very lightly attended. Only 33 out of a possible 250 or so people attended. We believe this was a result of holding the event too far removed from the previous project activity and not actively including family group participants in the planning of the celebration. The role of project participants shifted from very active at the beginning (e.g. registration session, listening session and activity design workshop) to more passive toward the end (e.g. open house and Saturday Showcases). People were initially asked to provide very direct feedback and interaction in the first phases of the project while they were simply asked to visit the museum and complete a survey in the final phases. This project did not have a big build-up to the end, so perhaps this is the reason for the low attendance. It is also very important to let families know upfront and throughout the project about their time commitment. Some families didn't fully realize the amount of time we were asking them to commit to as participants in this project.

If you hold a final celebration for a project like this, in the agenda you should allot time to:

- Welcome Families.
- Allow participants to speak with representatives from all pieces of the project and ask questions.

- Interact with materials or activities centered around the project (making activity).
- Share presentation:
 - a. Images from throughout the project.
 - b. Project highlights.
 - c. Short overview of the data collected.
 - d. Opportunities to stay connected.
- Eat and mingle amongst one another
- Explore the museum space (passes should be made available)

During the event, schedule multiple times to go over the presentation as participants might arrive at different times due to other obligations. Documents should be available in multiple languages for accessibility; but should not be separate documents. Provide materials for families to tinker with throughout the day. Encourage families to go into the exhibits after the program.

Concluding Thoughts

From the beginning of this project we were clear with ourselves and the project participants that we had a lot to learn from them. While we had been doing community engagement work and forms of making for quite some time, this project merged these two areas in very new ways. And we embarked on a cross departmental project journey that was very new for our institution. Through this project we experienced many “aha” moments and many “how could we let that happen?” moments.

As we expected, we did face many challenges throughout the project. Some of these we called **Institutional Challenges** that arose due to policies, procedures, tools, and systems that weren’t built to support this type of project. We also experienced challenges regarding cross departmental friction and even some interpersonal friction points. Other challenges we called **Collisions**, because they involved cultural and racial misunderstandings and microaggressions experienced by our partners. We feel it is important to distinguish between these two challenges because they arose from very different origins and required very different responses. We also witnessed **Institutional Impacts** that resulted in positive change or learning. These were places where we went off script and tried something new or different that wasn’t explicitly written in the proposed project activities. Finally, we feel it is particularly important to call out several impacts that directly relate to our ability to sustain authentic community engagement. **Relationship Ripples** track the relationship development between Family group or Community Partner participants and programming that continues as a result of lessons learned throughout the project.

Institutional Challenges

- We retroactively changed project documents or details after meeting with Community Partners so there were times we shared different versions of the same document with various people. The complexity of this project and our attempts to be adaptive and flexible made it challenging to track in-the-moment changes.

- Working with community partner schedules and transitions.
 - Scheduling meetings for busy people with varied work schedules was a challenge. We rarely had full attendance at our Community Partner meetings. We had to figure out the most effective way to keep both attendees and non-attendees up to date. Community Engagement staff made attempts to set aside time to be in consistent communication between partner meetings. When we did not communicate frequently, we lost the opportunity for learning from our partners about the communities they represented.
 - Two Partners left part way through the project - both due to job changes. We worked with them to identify a new Community Partner from within their recruited family group participants. This was challenging because the Partners who came into the project part way through had less knowledge about the role and had fewer connections to the family groups their predecessors had recruited.
- Expectations and planning for non-English speakers.
 - We encountered language barriers with some of the family groups, specifically those who spoke Spanish. While some documents were available in Spanish from the beginning of the project (IRB consent form) others were not. We initially translated documents into separate documents - English and Spanish.
 - Through partner and participant feedback we adapted and included English and Spanish in the same document.
 - We also should have had professional translators at each registration session instead of depending on the informal translation skills of some of our Community Partners. While the Community Partners were willing and open to translate in the moment, we could have better honored their skills as translators by asking them in advance if they preferred acting as translators in that space or having someone else provide translation services.
 - It became challenging to capture the nuance of the Play Tinker Make activity titles in other languages and document them appropriately. The timing of the activity development didn't provide for thoughtful translations by someone fluent in that language.
- Managing relationships between project staff and Community Partners.
 - We didn't initially discuss a plan for handing off our contacts from one project team to another. The Community Engagement staff had built and maintained close relationships with the Community Partners up to the Activity Design Workshops. It took some additional meetings and conversations with Programming team members to identify the best way to communicate with partners and participants about this next phase of the project. And we could have worked much more closely with the Marketing team to better communicate with the registered family groups throughout the project.
 - Community Partners and participants were encouraged to have the listening sessions in a way that was comfortable and felt safe to them. For some that meant speaking in a language other than English. Some sessions included museum staff who also identified as part of that community.

One group requested that only museum staff of African descent were present at their session. We were fortunate to have project team members who represented these requested identities. We wondered what we would have done had that not been the case.

- Activity Integrity: Participants developed activities that had a personal cultural context. There were a number of issues regarding cultural representation and cultural identity that determined our incorporation of these activities into our programming:
 - If the activity was closely personally connected to the person who suggested the activity, through religion or spirituality, we were hesitant to have our volunteers replicate the making activity. It was important for us to be able to represent the authenticity of the cultural perspective that went in to the creation of the activity. We wanted to honor cultural representation and not cultural appropriation.
 - There were some activities shared by our participants that we chose not to do. An example is an activity suggested to us by an American Indian participant: making paper models of teepee tents. Museum staff felt it was too far removed from the authentic traditions--of construction, materials, decorations. It appeared to be offered as a craft activity rather than as a Play Tinker Make programming model so we felt it was not appropriate for our program efforts. Another example was an activity suggestion which program staff labeled as pseudoscience and determined didn't meet the scientific standards for the museum.
 - One Community Partner wanted to combine traditional beading that would be used in dance regalia with an electronic sewable circuit.
 - This activity was led by the Partner who taught traditional beading in schools. With her help, the program evolved into creating wristbands or necklaces with circuits and decorated with beading. Co-developed by the Partner and our staff, this fit very well with our efforts to support making and re-presenting works from the community
- Adult vs child vs family spaces.
 - Some of our project activities created an unnecessary division of adults and young people (specifically school age and older). We initially thought of the Activity Design Workshops as spaces for only the adults of the family groups to participate. While we invited full family groups to participate we planned to have the children spend the workshop time with one of our interns. When they arrived, family groups expressed a desire to stick together for the workshop. What was originally planned as an adults-only learning space quickly turned into a family social learning space.
 - We did not intentionally set the stage for young people to participate in the listening sessions. We let the Partners and participants decide who attended, but focused heavily on the adults in our planning. We did not encourage participants to ask youth to be part of the process nor did we add any youth specific questions to the agenda. In retrospect we should have more directly asked the community members who they wanted to participate. We could have learned a great deal by engaging in more active listening with the young people in the family groups.
 - Youth got restless while their adult completed the survey at the end of their museum visit. This is one of the reasons we set up a Play Tinker Make activity at the lobby check-in table where the surveys were completed.

- Gallery experience.
 - On the initial Showcase Saturday the **Making Connections** activity tables were not clearly identified, and participants initially had trouble finding them. This led to us creating and handing out a printed list of Play Tinker Make activities that included wayfinding assistance.
 - We also encountered many challenges that would have been either avoided or more quickly solved by including staff directly connected to the visitor experience on the project team.
- Decreasing participation rates throughout the project.
 - Families obligations (soccer games, practices and family events on Saturdays) competed with Showcase Saturdays
 - Our expectations of family groups were not particularly clear. Their role was simply to visit the museum rather than complete a more specific project-related task across their two year participation. We did not require family groups to participate in the Activity Design Workshops, though this could have been a way to deepen engagement.
 - Attendance to the final celebration was very low compared to the total number of family group participants (Roughly 35 out of over 250 individuals). We believe this was in part because the celebration happened so much longer (5 months) after the final set of Saturday Showcases.
 - We could have worked more closely with the Marketing team members to develop better and more consistent communication techniques to stay in touch with the family group members.
 - There was also attrition from the Marketing project team over the course of the project. As a service oriented department working with programming and evaluation staff we experienced significant differences in how we approached our work and even how we prioritized our project time in comparison to this group. Their participation waned as they were directed to prioritize other marketing projects.

Collisions

- Language issues.
 - Trying to figure out if someone needed a separate translated document could lead to profiling. Someone who looked like they spoke Spanish might not in fact be a Spanish speaker.
 - Not having any or enough bilingual or multilingual staff or professional translators present caused us to rely on Community Partners without first clearing with them what their role might be.

- Project branded badges
 - While we used the same badges as museum staff and volunteers, having them labeled differently (they had “Making Connections” printed in red) singled out project families. This made some of them feel separate from “regular” volunteers.
 - While intended to align with museum staff and volunteer badges, our special badges for Family Participants created confusion with staff and set up our participants for unfortunate interactions at the beginning of the program. Visitor experience, parking, and security staff didn’t initially have a similar understanding of the access afforded by the badges and this led to confusion at the box office and parking ramp specifically. The ticketing system wasn’t updated immediately after participants received their badges. Participants were sometimes questioned when they went to the box office to redeem free tickets. We did not fully inform box office, parking, and other visitor services staff about the badges at the beginning of the project. Even when we did, we experienced an unclear flow of communication from the box office manager to box office staff. The Community Partners and family participants talked about feeling singled out or unnecessarily questioned. While we were building deeper trust between our project staff and community participants, we were not simultaneously building trust between our non-project staff and these community members.

- Other museum staff interactions with project participants
 - Some of our family group participants and a community partner had problematic encounters at our Explore Store and Box Office. This message is from one of our Community Partners: *“Last but not least [name redacted] had a run in with the SMM store. [Community Engagement staff member] was privy to part of the issue. But it's the same old story. The employees there do not want to give the benefits afforded to the Making Connections members (20%). It wasn't even the new staff that were the issue, it was the old employees and the manager too, and believe it they knew better. So the SMM store employees willfully disrespected [name redacted] and Rich!”*
 - *I personally will boycott the store and encourage everyone that I know to do the same for their discriminatory practices. This was the 3rd complaint to me about the Store over the past two years. And I know it's more, our community is very understanding of these practices and most of the time [I push] it to the side because we have bigger battles to fight. The excuse is always "training" and "they are new." Well the staff practices discrimination too due to the portion of their heritage that is inflicted with the white supremacy value system which is their default training and mode of operation. This is a shame. I hope this goes into the evaluation of the Making Connection program.”*
 - One of the partners requested use of a classroom on one of the Saturday activities. A project team member was not available to let them in the classroom. When they found another staff member they were repeatedly questioned rather than simply allowed into the space.

Institutional Impacts

Community Partner Work

- We didn't know in advance what the best representation of Community Partners would be. Because of our work group members' different levels of experience we ended up recruiting people from a range of social statuses and positions within their communities. While we were initially worried about the effectiveness of our Community Partner selection and invitation process, we were pleasantly surprised by the outcomes. By drawing on the connections our Community Relationships group already had through previous work (recently met to long-time partners) we had a widely diverse and deeply committed group of Community Partners. This mixed group of occupational as well as racial and ethnic identities provided us a wide variety of perspectives and levels of engagement throughout the project. The group of Community Partners included the following individuals:
 - Public charter school principal
 - Public school parent liaison
 - Employees at local corporations
 - Three out-of-school time (youth work) professionals
 - Firefighter & school educator who run a culturally affirming (Afrocentric) out-of school-time program
 - Executive Director & Program Director of larger culturally specific non-profit organizations
- Sharing making time, food, and time to provide updates from their personal and work lives deepened relationships between Community Partners. They developed relationships with each other. Watching their shared comfort grow over the course of the project was really meaningful. Partners started talking about their work to each other and doing deeper networking.
- Partners developed relationships with other project team members they met during these meetings. And they learned to go to these staff members for specific things—thinking specifically of Evaluation & Research and Programming team members.
- We also shared other museum opportunities during the Partner meetings. Several Partners engaged in one-time volunteer roles for museum events. They became a part of a broader museum communication network and took advantage of engagement opportunities in which they may not have participated if they had not been a part of the project.

Registration Sessions

- Without explicitly writing it into the agenda script we acknowledged in our introduction that museums have not been welcoming or inviting to the participants' communities and have even harmed communities throughout history. Being candid up front invited people to trust our intentions and to be more comfortable in giving us both positive and critical feedback.
- Increased understanding of the vast number of processes & procedures and staff that needed to be involved to put together a larger social gathering for people in our institution.
- Increased understanding of all the complexities involved in visiting the museum. This led a group of staff to analyze survey responses to create a First Time Visitor Guide (<https://www.smm.org/first>) to help people plan and navigate their first visit.

Listening Sessions

- We did not fully anticipate what a rich treasure trove these conversations would provide. The listening session feedback deeply informed the work of each of the four project teams (Marketing, Evaluation & Research, Programming, and Community Engagement).
- We also shared the data with other museum staff to illustrate how urgent it was to make institutional changes to become more valuable to more people.

Activity Design Workshops

- We learned that the family participants were great at leading Maker activities on the museum floor, especially activities that were developed out of their cultural traditions. This provided another model for us to add to programs facilitated by Museum Programming staff or volunteers.
- Family groups who engaged in the workshops were more engaged through the rest of the project activities.
- The amount of planning time spent led to positive relationship building between Community Relationship and Programming group members

Cross departmental work

- This project pushed us to develop stronger relationships with our Marketing, Evaluation & Research in Learning, and Public Programs departments. We learned very quickly how necessary it was to clearly communicate with each other to best support our relationships with the project family groups. Each departmental group experienced moments throughout when we needed to listen and learn from the others and times when we needed to clearly share our expertise and knowledge. We also learned through much trial and error how to effectively work with our visitor facing staff departments, specifically the call center and box office. In hindsight we should have included staff members from this department (Visitor Experience) from the beginning of the project.

Relationship Ripples with Community Partners

We feel another positive impact of this project was to strengthen our relationships with and connect our Community Partners to other opportunities within the museum and each other. We anecdotally tracked the development of our relationships with the ten Community Partners throughout the project to the present. See Appendix H for notes on our relationships with Community Partners.

Sustainability

From the first contact with Community Partners we stated that we did not want our work with them to end when the funding ran out. Throughout the entire project we kept close track of positive connections the family group participants experienced. We drew on some of the especially positive experiences people had in the project to create more sustained efforts to maintain meaningful connections with specific community groups. We have developed two initiatives from this project that we hope to sustain into the future: Community Gatherings and a Making Connections volunteer role.

Community Gatherings

Many partnerships between organizations and communities end either when the project is up or funding runs out. We want to build a lasting partnership with our communities, so staying connected past the project is vital. We continue communication with the communities through mailing and emailing project updates as well as through museum updates. We now host community gatherings at the museum the first Saturday of the month. We began with quarterly activities but have now moved to monthly for better consistency. We are also beginning to plan gatherings beyond our walls meeting the request of certain community members for us to meet them where they are rather than always asking them to come to us.

This is a space to have conversations, e.g., mini listening sessions, to discuss what is happening in the communities as well as at the museum. If we are going to make the museum relevant for more community members, we must gather feedback on how we can continue to be relevant for these communities. We want this to be a space for open dialogue with communities. We develop reflective questions around STEM/Making for attendees to answer. We also ask them continually to share their views of the museum. We deliver a brief PowerPoint on what's happening at the museum—new exhibits, Omnitheater film, programs. We provide a free, light snack. We also provide free museum passes and parking validation.

Making Connections Volunteers

One strength (of many) the family group participants and Community Partners brought was their knowledge of the museum and their connections to other families who might not currently be visiting or who have never visited. Some of the Partners and families brought new visitors on a regular basis and worked to help these new families feel comfortable in their visit. The project team has particularly focused on the experience of first time visitors, especially visitors of color and American Indians, and on how to support those visits.

We piloted a new volunteer role (with 10 people) at the museum during summer 2017. Making Connections Volunteers were asked to bring a new family to visit the museum 3-4 times during the summer. Both the Volunteer and her/his guests were asked to participate in a brief survey about their experience to document the effectiveness and impact of this new role. We created [an informational document](#) (Appendix I) to share both internally with staff and externally with potential volunteers.

Conclusion

Our hypotheses when we began this project were:

- 1) that an approach based on diverse perspectives from within the museum yet centering community perspectives for engaging underserved audiences will be effective, and
- 2) that members of underserved communities will feel more connected to STEM after participating in the study and attending the related events.

From our vantage point as the community relationship group some of our assumptions were affirmed and we experienced some meaningful “aha” moments throughout the project. One main piece of our work that was affirmed was the importance of building and strengthening relationships. In our Theory of Change we originally set *attraction* and *satisfaction* as guiding vision assumptions, but we quickly added *trust* and *relationships* as well. If a family group doesn't have trust or a sense of relationship with our organization, then they won't visit. One can only experience attraction and satisfaction if one has built some level of trust and relationship with the organization.

Once relationships have been built and/or strengthened, the door opens up to the opportunity to learn from and with each other. We very intentionally set this project up in a way that took down as many implicit and explicit barriers for participation as possible. Throughout the project we stated our deep intention to learn from the family groups and community partners in order to improve our practice. We also made ourselves vulnerable to our colleagues, discussing challenging topics like access and inclusion, and creating new lines of communication and action between our previously siloed off departments. We wove new networks of trust and relationships with our colleagues and with the community members who participated in the project.

Finally, we took great pains to practice what we learned. This was a participatory research project and we made every attempt to actively learn and grow from the data gathered by our research and evaluation colleagues. We made changes in practice within our project groups and even used data and family group and community partner feedback to engage in learning conversations with our colleagues elsewhere in the museum.

In summary, our efforts to expand the cultural understanding of the “Maker Movement” had multiple effects on our own cultural assumptions, our work practices, and our ability to communicate and collaborate with the communities we work with. We learned it’s important to try stuff, but you need to do it thoughtfully. You need to take time to intentionally listen to communities/external partners. And then you need to be prepared to respond to their needs. Through this project we have a much better idea of how to continue to build trust and relationships with communities in whom we have historically underinvested and how to do so in a way that staff across the museum can see their role as stewards of these relationships.

Community Relationship Group staff & roles throughout the project

Joanne Rizzi Jones - Director of Community Engagement, now Vice President of STEM Equity & Education division

- Member of core museum staff project team
- Provided leadership and direction for community relationship group work
- Recruited Community Partners based on existing relationships

Rich Pennington - Career & Community Connections Coordinator, now Interim Internships Project Manager

- Member of core museum staff project team and member of Research & Evaluation project team
- Recruited and maintained ongoing communication and support with Community Partners
- Planned and coordinated project activities at the museum
- Advocated for youth voice throughout the project

Robby Callahan Schreiber - Career & Community Connections Program Manager, now Museum Access & Equity Director

- Member of core museum staff project team
- Recruited and maintained ongoing communication and support with Community Partners
- Planned and coordinated project activities at the museum

Bilir Kasuh - Making Connections Intern and Project Assistant, now Activate Coordinator

- Member of core museum staff project team
- Provided support for project activities
- Supported project sustainability efforts, specifically community gatherings and new volunteer role development



Play Tinker Make Activities

An Exploration of Communities and Making at the Science Museum of Minnesota



The public programs team of Making Connections utilized a familiar structure [once known as Activate, now called Play Tinker Make] within the museum to host Making activities which were co-created or inspired by project participants. This document describes the way that Making was deployed among participants [and staff] to draw out stories and to foster interactions. The full list of 25 activities that emanated from the project is included. Brief online modules demonstrating some of them are also available through web links. The document concludes with examples of What We Learned and Next Steps toward sustained cultural connections.

Play Tinker Make Model

Play Tinker Make [PTM] is a weekly [Saturday] program that deploys a corps of volunteers engaging visitors in a variety of tabletop making activities and demonstrations and interactive activities throughout SMM every Saturday afternoon. Visitors use an assortment of materials, tools, and technologies to explore and create. Our design- and play-based activities are experimental, fun, and intended to create opportunities for open-ended exploration. Training procedures for PTM program volunteers have been refined over three years of implementation, and the ability to get new volunteers up to speed quickly is one of the strengths of the program. One method of supporting the training of volunteers occurs via short introductory videos and Snapguides, which are pictorial instructions that can easily be accessed on mobile devices (versus paper handouts containing lists). Staff who are involved in research and development for PTM activities include former members of the national MakerCorps program [MakerEd.org] that ran over three summers at SMM.

The PTM continuum is our way of conceptualizing how learning via objects can happen within SMM. We equate teaching with “facilitation,” which is carried out through modeling. When PTM staff and volunteers model hands-on activities, they are messaging to visitors, “I am getting comfortable doing this activity, and you are invited to join me.” When visitors choose to engage, direct instruction, when needed, is then given.

Lastly, the PTM program connects with other museum programming as follows:

- Complement to Learning Technologies Center’s efforts to support learning through creative explorations of classic and emerging technologies;
- Provides training and facilitation experience for members of SMM’s Kitty Andersen Youth Science Center;
- Consistent facilitation opportunities for the museum’s volunteer pool;
- Outlet for community engagement efforts [e.g., Making Connections].



Making Connections Phase 1: Listening Sessions

A dozen community liaisons who were leaders within the African American, Hispanic, Latino, Ojibwe, Dakota, and Hmong local communities were recruited by SMM's Community Relationships team. The partners then recruited about 150 adults who became project participants and who attended seven Listening Sessions held at SMM and at local community sites. The goal of these initial events was to understand what family participants honestly think about SMM, and what kinds of hands-on activities were important to families.

"You can fix anything. You can use anything to fix anything. I watch the home shows. You can make something out of nothing."

-- Making Connections participant

We heard an array of activity examples during the Listening Sessions. They included making doll clothes, vegetable gardens, obstacle courses for toys, lanyards, homemade drum sets, and experimenting with materials like vinegar and baking soda as well as chemicals that reacted with heat and cold. Some participants talked about fixing and repair, rather than creating new things from scratch.

Many activities were discussed with attention to budgets, and thrift became a popular concept that underlined the hands-on activities participants talked about. For example, creating a side table from a cardboard box covered with a lovely tablecloth was one participant’s description of how she engaged in hands-on activities in her home.

Participants also discussed YouTube as inspiration for activities they tried out with children, and they talked about the value of creativity and exploration in childhood. One person shared that creativity “helps my daughter with leadership skills. She can articulate what’s in her head” and that she’d created a superhero costume on her own. Finally, cooking was one of the most popular responses to our questions about what participants make with their hands.

Figure 1 below illustrates the most popular at-home Making practices we heard during the Listening Sessions. Almost 175 total examples of Making were captured by researchers during the seven Listening Sessions. Below are the main themes, and the number of times they appeared in our data. Cooking and gardening were related themes, given that participants talked about growing their own food to use in their homes. Thrift, or an awareness of costs and budgeting, was a theme that overlapped with sewing, and with a different theme of making one's own repairs to cars or home improvements. In some cases, art was discussed very generally [for example helping out with an art crawl, or participating in an art show at work], and in other cases people discussed making 2D art such as drawing, painting, and photography.

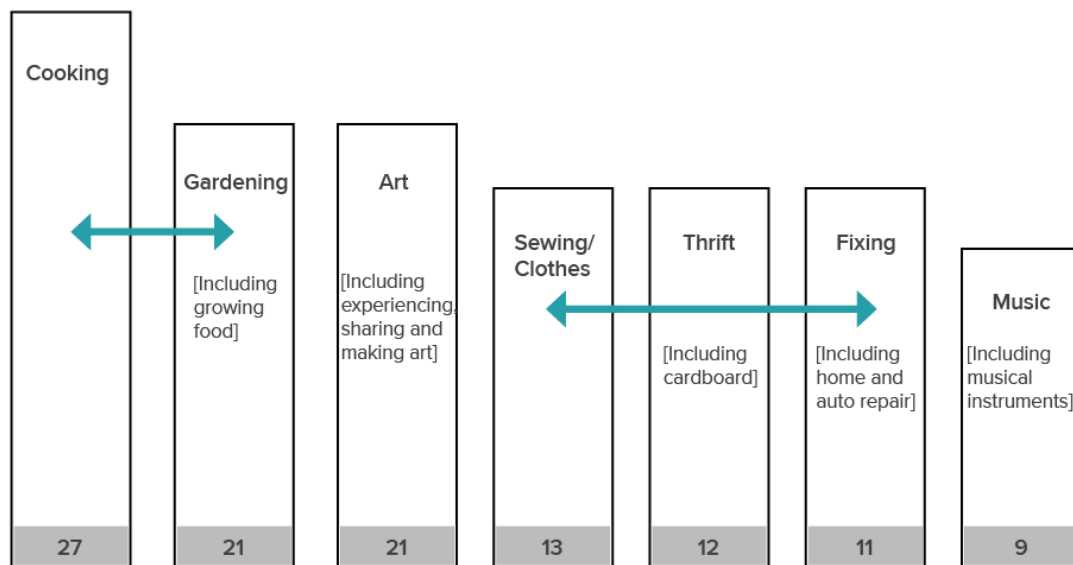


Figure 1. Themes within the hands-on activities participants discussed doing at home, and the number of times they appeared in the data from Listening Sessions. [Image not to scale.]

Making Connections Phase 2: Research and Development

Three co-design workshops were held in the months that followed the Listening Sessions. Participants were recruited by project staff and by community partners, with a special push to have participants attend who had any of the following qualities:

- Likes to think about how things are made;
- Likes to fix or re-purpose things;
- Has a willingness to talk with others about the creation or adaptation of objects;
- Has a willingness to think about the cultural context of making, fixing, or re-purposing objects, and/or how those skills are taught and valued.

We invited participation in many ways—over email, through face-to-face meetings, and through specific invitations to people who talked about their own enjoyment of hands-on activities. We pitched that workshop attendees would be given space and materials to explore using their hands. If they already had activity ideas prior to the workshops, SMM staff purchased the materials needed for them to play and demonstrate to others.

“It looks like a mess sometimes. I don’t know. I feel good about it.”

-- Making Connections participant

We provided activity guidelines ahead of time, in order to ensure that participants would think creatively within the strictures of the PTM framework. Some of these strictures, such as safety and science standards, are necessitated by broader SMM guidelines for visitor engagement. Hands-on activities at the co-design workshops needed to have the following attributes:

- local ingenuity (skills/crafts that exist within the community);
- something that people can do or that happens in the community;
- activities that are easy AND challenging enough (“low bar, high ceiling”);
- safety;
- adhere to SMM’s standards for current science; and
- participants needed to be comfortable with allowing others to take over and share the activity broadly.

The three co-design workshops were held within a classroom space at SMM. Featured activities were chosen to encourage exploration and further idea development, which were partly based on Listening Session feedback, and partly based on SMM's PTM repertoire. Examples included MakeyMakey computer controller, stop motion animation, cardboard construction, embroidery machine sewing, inflatables with plastic bags, and many other activities. Children and adults gravitated to the things that interested them most. Researchers from the project talked with adults one-on-one during the workshops, and heard the below themes.

Ways workshop attendees talked about their process for hands-on activities:

Messy

Messiness was a popular attribute that participants mentioned when they reflected on what Making looks like in their home. People described it positively, such as in one example, "If there's an activity going on where people are encouraging 'come on, do it! Get messy!' I think I do it more."

Thrift

Attention to costs was an ever-present theme across all phases of the project. One participant described a craft project as a way to "reduce, reuse, recycle" materials which would have been thrown away. Another person mentioned that the budget usually determines how loose or structured his process for making or fixing household items will be: "If it's simple tools and materials then I just dig in. But if there's a greater cost and going to the store, I gotta plan it out."

Taking things apart

Participants talked about learning by taking things apart, such as "When I was a kid I had an old radio, just a clock radio, and I took that apart to see how it worked, back when I was younger when I had time. That really interested me." Many shared the same kinds of childhood memories, and even discussed being okay "when you put it back together and you're either missing a part or have too many."

Wrong turns

We generally heard that participants viewed wrong turns as a part of the design process. One said "mistakes turn out to be genius ideas," and a different participant said "Sometimes I plan it in advance but when I finish it's something completely different than what I thought in the beginning."

We generally heard that participants viewed wrong turns as a part of the design process. One said "mistakes turn out to be genius ideas," and a different participant said "Sometimes I plan it in advance but when I finish it's something completely different than what I thought in the beginning."

The following images show the design workshops. Left, a participant created butter in a Tupperware container. In the middle, a participant who was curious about chemistry created a volcanic eruption. On the right, two participants show the results of the “cut it open” activity.



Making Connections Phase 3: Demonstrations

A sequence of five public events in Spring 2015 and three public events in Fall 2015, each called “Making Connections Saturday,” represented the demonstration phase of the project. Ultimately, only three families co-developed activities during workshops and then demonstrated them with the public. Yet we drew from ideas from the Listening Sessions and the workshops to create a total of 25 new PTM activities that were connected in some way to what we heard from families. **Figure 2** shows the themes within the new activities.

“Having different activities, I think those are the days I would rather come than just to look at the exhibits.”

-- Making Connections participant

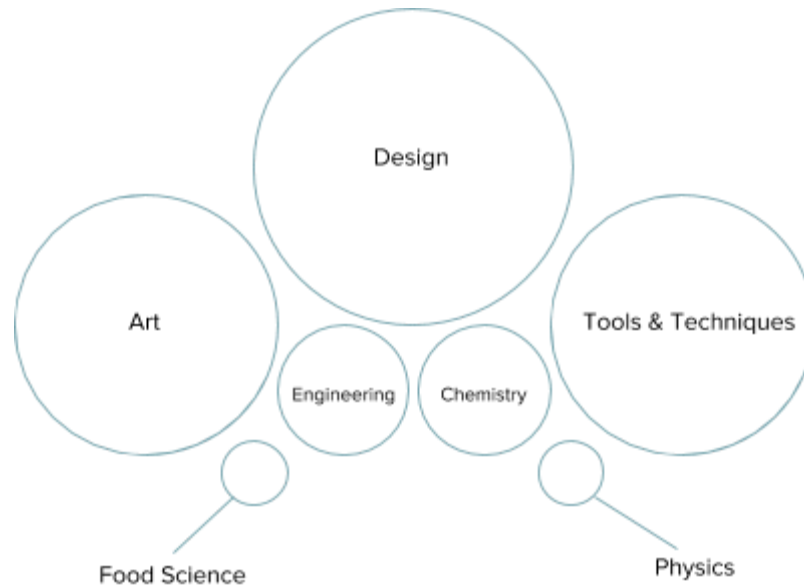


Figure 2. Main themes within the new set of PTM activities derived or inspired by participants. The size of the circles is relative to how often they appear within the activity list.

Making Connections Saturdays were structured like a typical museum visit with the addition of a welcome table and a station in the lobby for completing surveys after the visit. The PTM activities, as usual, were featured around the museum, however on those days we used bilingual [English and Spanish] signage at the activity tables, and drew more heavily from Making Connections-derived activities than on other days.

Storycloth Embroidery is an example of a PTM activity that was developed during the workshops and demonstrated at Making Connections Saturdays by the families who initially presented the idea. A participant who is also a Community Partner, and who is Hmong, connected her hobby of cross-stitching with her cultural tradition of Hmong Storycloths. She recruited other women who knew the embroidery techniques used in storycloths, and they taught one another, and then the public how to stitch animal shapes during PTM.

Ways the Storycloth Embroidery activity matched PTM parameters:

Local ingenuity [skills/crafts that exist in the community]:

The women who were the initial facilitators had the skills and knowledge to do and teach the activity.

Something that people can do and that happens in the community:

Storycloth Embroidery highlights what happens in the Hmong community in the Twin Cities as well as points to the past.



Activities that are easy AND challenging enough [“low bar, high ceiling”]:

The embroidery is easy to get started, but takes patience with the repetitive nature of the activity—it takes time and work to be able to be expressive.

Safety:

Yes. The only risk is working with needles.

Adhere to SMM’s standards for current science:

n/a

Participants needed to be comfortable with allowing others to take over and share the activity broadly:

We weren’t sure at first whether it was okay to use Storycloth Embroidery when the Hmong facilitators weren’t present at the PTM tables. We ultimately decided to go ahead as the facilitators had been teaching each other and had varying levels of expertise themselves. When we first had the materials available in the workshop, PTM staff facilitated the activity and came up with techniques that we thought would make it easier to get started [for example, we cut out animal shapes with a paper cutter that learners could trace outlines onto the cloth that they would follow and fill with embroidery].

DIY Pop Rivet Cookie Cutters



DIY Pop Rivet Cookie Cutters is an example of a PTM activity that was inspired by what we heard in Listening Sessions, that is, activities that relate to food and cooking. Using the symbolism [or metaphor] of the cookie cutter shape, visitors can represent meaningful cultural elements like holidays or important objects. Other ways the cookie cutters matched PTM needs is described below:

Local ingenuity (skills/crafts that exist within the community):

The materials and tools for this activity can be purchased by anyone at a local hardware store.

Something people can do or that happens in the community:

Project participants emphasized that cooking with their families is a favorite pastime.

Activities that are easy and AND challenging enough (“low bar, high ceiling”):

Project participants emphasized that cooking with their families is a favorite pastime.

Safety:

Safety goggles *and* gloves must be worn. This conveys a sense the activity is authentic, something that may create a sense of welcome for adults and older youth.

Adhere to SMM’s standards for current science: n/a

Participants needed to be comfortable with allowing others to take over and share the activity broadly:

This particular activity was not sourced by an individual artist. The PTM director used the Listening Sessions and his own experience with metal work to suggest this activity.

Cardboard



Cardboard is a final example of how we culled ideas from the Listening Sessions and adapted them into PTM activities during Making Connections Saturdays is our use of cardboard as a building material. Linked closely with the theme of thrift, which we also heard from participants, cardboard is an easily accessible material that a household can use to save a few dollars. During the demonstration events, we made cardboard sandals with visitors, and twice we designated a hall in the museum for “Cardboard Day.” We filled that room with cardboard boxes and invited children and adults to build sculptures. Because of the popularity of the “Cardboard Days” with both visitors and staff in the museum, we chose to continue the large installation of cardboard activities in the museum hall during four weekends of the holiday season. Retitled the “Cardboard Gallery,” this has led to interest in looking at the gallery as a prototype for a new exhibit and for targeted funding.

What We Learned

During the two years that we interacted with Making Connections families, we tried to deconstruct barriers that made it challenging for them to access and feel comfortable within our museum and our Making activities. Simultaneously, we became aware of new challenges families were experiencing, which made us feel like our progress was hampered. For example, while we successfully recruited a Latino family to co-develop their idea of churning butter as a new PTM activity, an African American Community Partner and his family experienced a negative interaction with an employee in the museum’s gift shop. Project staff began referring to these unexpected moments of hostility, disappointment, and/or perceived racism as “collisions,” and we handled them as best we could.

During Phases 1 and 2 of Making Connections, we also learned more than we anticipated about communication. Some participants initially reported feeling “overwhelmed” during orientation sessions, or left feeling unclear about what exactly we intended to achieve through the project and what we were requesting of them. We tried to pare down our correspondence with families, created scripts for telephone calls to foster clearer communication, and used more bilingual (English and Spanish) written material. Infrequently, we also grappled with internal communication as a project team, as we each had our own way of thinking about cultural or racially charged topics that were inevitable to arise in a project of this nature.

Overall, we witnessed a range in family participation styles, including frequent attendance among a small number of families, and attrition among many other groups. Among those who participated until the end of the project, some families may have thought of themselves as museum ambassadors as they toured newcomers around the museum, and others may have considered themselves as leaders within the project. Additionally, some groups attended but were onlookers and did not directly engage with the PTM workshop activities.

Lastly, understanding how participants’ cultural traditions and norms were represented within activity ideas existed as more of a “gray zone” than a clear cut manner. For example, a family proposed an activity of cutting golf and tennis balls open to see what’s inside. While it became one of the most popular PTM activities, the deeper story was harder to convey around the museum: the family had been curious about ways to represent the rubber their South American ancestors had harvested, and thought that the rubber interior of the balls was a way of incorporating rubber within a new Making Connections activity. Another “gray zone” we sorted through was whether a sand painting activity was an example of cultural appropriation of Native Americans or not.

Being able to simultaneously celebrate progress while still being attentive to challenges is required for our work. The next section discusses ways we intend to apply what we learned in sustainable ways.

Next Steps

To honor the goal of Making Connections as a strategy for establishing long-term, sustainable relationships with African American, Hispanic, Latino, Dakota, Ojibwe, and Hmong families, we plan to implement the following next steps:

- Continue to develop PTM activities that build on what we've learned and continue to foster authentic community engagement around Making through community workshops and monthly Making Connections Saturdays.
- Continue to seek out alternative formats for family-based demonstration events, such as a school family night format called Creativity Gardens, which has yielded between 500 and 1,000 visitors during each event.
- Develop a guide for first-time visitors, to help make a newcomer's visit to SMM less opaque.
- Collaborate with SMM's Volunteer Department to develop the next phase of participation among Making Connections families, potentially as a new "ambassador" role in which they help new visitors get comfortable with the museum.
- Disseminate Making Connections findings within SMM and advocate for "strategic priorities" that spread responsibility for ongoing engagement with new audiences across all museum departments.
- Disseminate Making Connections findings across national and international Making and informal science education networks.



Sample Play Tinker Make Activities

Activity: **Bath Fizzies**

Content: **Chemistry**

Themes: **Came out of a participant's experimenting with chemistry.**

Activity: **Body Casting with Tape**

Content: **Art, design, tools and techniques**

Themes: **From conversations around designing and making clothes.**

Activity: **Cardboard Sandals**

Content: **Design and engineering**

Themes: **From conversations around designing and making clothes and cardboard.**

Activity: **Chalk it Up**

Content: **Chemistry**

Themes: **Thrift, chemistry, making your own art supplies.**

Activity: **DIY Pop-Rivet Cookie Cutters**

Content: **Design and engineering**

Themes: **Cooking, make your own tools, learning new tool use.**

Activity: **DIY Ice Cream**

Content: **Chemistry and food science**

Themes: **Cooking and chemistry.**

Activity: **DIY Speakers/Headphones**

Content: **Physics, circuits, engineering, sound**

Themes: **Connecting simple science experiments with creating something useful - a speaker or headphones.**

Sample Play Tinker Make Activities

Activity: **Duct Tape Design**

Content: Art, design, tools and techniques

Themes: Being creative and connecting with culture [patterns] with novel materials.

Activity: **Earthquake Designs**

Content: Design and engineering

Themes: Experimenting and toys.

Activity: **Elephant Toothpaste**

Content: Chemistry

Themes: A participant's experiments with chemical reactions that produce heat and cold.

Activity: **Mini Posters with Paper**

Content: Art, design, tools and techniques

Themes: Exploring art and technology.

Activity: **Plotter**

Content: Techniques

Themes: n/a

Activity: **Paper Cut Animations**

Content: Physics, optics, art, design, tools and techniques

Themes: Storytelling with new materials and technology.

Activity: **Program-a-Bot**

Content: Computer programming

Themes: Connections to cars, math and technology.

Activity: **PVC Pipe Construction Kit**

Content: Engineering and architecture

Themes: Building furniture, building structures like houses (doll houses), thrift, (make your own kits).

Sample Play Tinker Make Activities

Activity: **Sand Painting**

Content: Art, tools and techniques

Themes: Culturally inspired craft but focused on technique versus embodying cultural connections.

Activity: **Sewing Chancay Dolls**

Content: History, technology, design

Themes: Culturally inspired craft but focused on technique versus embodying cultural connections.
Sewing, thread.

Activity: **Soldering Sculptures**

Content: Art, design, tools and techniques

Themes: Soldering - practical and useful skill building.

Activity: **Sewing Chancay Dolls**

Content: History, technology, design

Themes: Culturally inspired craft but focused on technique versus embodying cultural connections.
Sewing, thread.

Activity: **Spherification**

Content: Chemistry and food science

Themes: Food and chemistry as well as a unique process.

Activity: **Storycloth Embroidery**

Content: Art, design, tools and techniques

Themes: Culturally inspired craft but focused on technique versus embodying cultural connections.
Sewing, thread.

Activity: **Takraw Ball Weaving**

Content: Math, design, tools and techniques

Themes: Culturally inspired craft but focused on technique versus embodying cultural connections.
Sewing, thread.

Sample Play Tinker Make Activities

Activity: **Tapagami**

Content: Art, design, tools and techniques

Themes: Art, craft, technique, unique process and thrift.

Activity: **Tape Transfers: Magazine Collage**

Content: Art, design, tools and techniques

Themes: Art, craft, technique, unique process and thrift.

Activity: **Tiny Wire Sculptures**

Content: Art, scale, tools and techniques

Themes: Art, craft, technique, unique process and thrift.

Activity: **Traditional Beading and eTextiles**

Content: Electronics, art, design, tools and techniques

Themes: Culturally inspired craft but focused on technique versus embodying cultural connections. Beading and sewing with electronics.

Activity: **Weaving with Materials**

Content: Paper engineering (duct tape)

Themes: Art, craft, technique, unique process and thrift.

Talk to Us...

For more information please write to the team at MakingConnections@smm.org. You can also add to our online page at tinyurl.com/SMMproject and if you use Twitter please use the hashtag [#makingconnectionsproject](https://twitter.com/makingconnectionsproject).

Acknowledgements

Thank you, Gracias, Miigwech, Ua tsaug to each and every Making Connections participant and Community Partner! We also wish to acknowledge many other SMM staff who contributed so much to the project, especially those who played a large role in Making Connections activity development: Thai Chang, Bilir Kasuh, Erick Lee, Gaohua Moua, and Milton Rosas.

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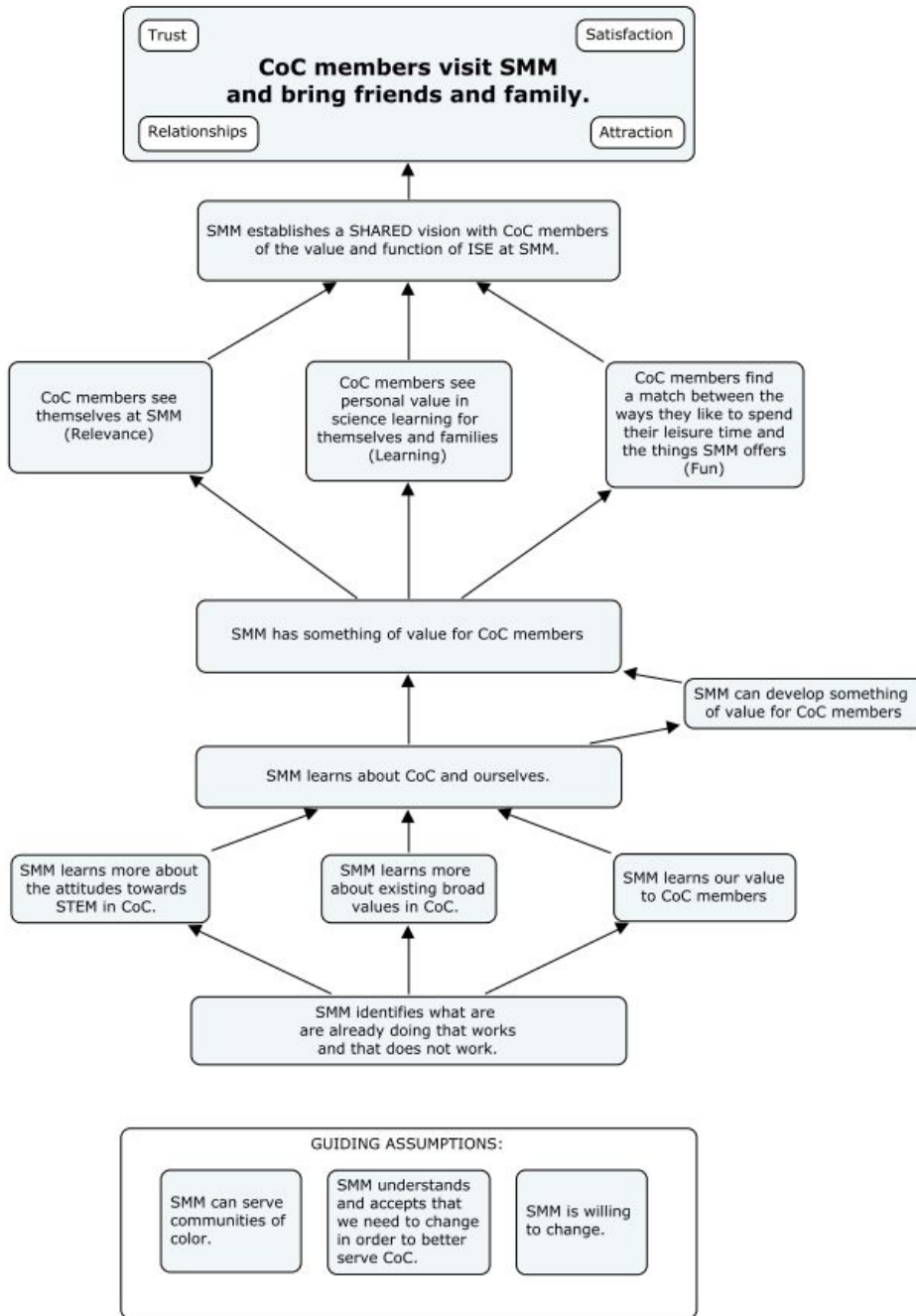
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Appendices

Appendix A - Theory of Change



Appendix B - Community Partner 1-Pager (double sided document)

Making Connections is a museum-wide project aimed at engaging local communities of color in a collaborative process to co-create Maker-style activities for the public.

In our strategic plan we acknowledge the importance and necessity of being an accessible place of learning and fun for people of all backgrounds. This project is about developing effective methods for communicating with and sustaining relationships with family groups within communities of color. More specifically we will explore how families and individuals create things, termed “Making” by some, and how doing this has links to learning in and around the museum.

Project Timeline



We will invite a group of Community Partners (you!) to provide ongoing feedback and planning for the project activities. We will draw on your relationships and community connections to recruit a host of family groups to participate in the next set of project activities. With your help we will:

1. Facilitate community listening sessions to better understand the museum’s value to members of communities of color and understand how “making” happens in various participant communities.
2. Over the fall we will facilitate community **Play, Tinker, Make workshops** with the newly recruited families and other “makers” in their communities.
3. At these workshops families and liaisons will collaboratively develop “maker” activities to be shared at Making Connections Saturday events in two rounds - Spring 2015 and Fall 2015.
4. The project will culminate in a celebration of all project participants in Spring 2016.

Your Role

Community Partner - Bridge - Collaborator - Advisor - Facilitator - Trust Builder

Represent individuals and groups who have not been present in museum project development. Opportunity to develop stronger network of community leaders. Positively change the way the museum operates to make it a more accessible community resource.

1. Attend Community Partner meetings and other project events
2. Participate in the development and testing of project components
3. Recruit 10-12 family group volunteers to participate in the project
4. Participate in surveys and in-person interviews with research and evaluation staff

Your Commitment & Compensation

You will receive financial compensation for participation in planning meetings, family recruitment, survey and interview completion, providing ongoing feedback and support. This will amount to \$3,000 over the life of the project. You will receive this compensation in four amounts: \$1,250 (Jun 2014), \$750 (Jan 2015), \$500 (Jun 2015), \$500 (Dec 2015). You will also formally become a museum volunteer which means you will have free access to museum exhibits, free parking in the museum ramp, and discounts at the museum stores.

Community Partner Timeline of Involvement

2014

- | | |
|---------|--|
| May | - Full group Community Partner meeting - meet museum staff on project (2 hrs) |
| June | - Recruit family groups to join the project & attend a Listening Session
- Participate in a trial Listening Session (2 hrs)
- Plan July/Aug Listening Session(s)
- Research interview/survey (30 min) |
| Jul/Aug | - Co-facilitate Listening Session (3 hrs) |
| Aug | - Research interview/survey (30 min) |
| Sep | - Full group Community Partner meeting - participate in trial Play, Tinker, Make Workshop
- Recruit family groups & other community members to attend a Play, Tinker, Make Workshop |
| Oct/Nov | - Attend 1 or 2 Play, Tinker, Make Workshops |
| Nov | - Research interview/survey (30 min) |

2015

- | | |
|---------|--|
| Jan | - Full group Community Partner meeting - plan Spring Making Connection Saturday Events |
| Feb | - Recruit family groups and community members to attend Making Connection Saturday Events |
| Mar-May | - Attend Making Connection Saturday Events |
| May | - Research interview/survey (30 min) |
| Jun | - Full group Community Partner meeting - Reflect on Making Connection Saturday Events |
| Jul-Aug | - Recruit family groups and community members to attend Making Connection Saturday Events - July 11th and August 8th, 12-4pm |
| Sep-Nov | - Recruit family groups and community members to attend Making Connection Saturday Events - Oct 10th, Nov. 7th, Dec. 5th, 12-4pm
- Full group Community Partner meeting - Reflect on Making Connection Saturday Events |

2016

- | | |
|-----|--|
| Mar | - Full group Community Partner meeting - Plan Community Celebration |
| Apr | - Attend Community Celebration |
| Jun | - Full group Community Partner meeting - Final group reflection and long-term next steps |
| Nov | - Research interview/survey (30 min) |

Appendix C - Family Group 1-pager

Making Connections is a museum-wide project aimed at engaging local American Indian communities and communities of color in a collaborative process to co-create Maker-style activities for the public. This project is about developing effective methods for communicating with and sustaining relationships with family groups within communities of color and American Indian communities. More specifically we will explore how families and individuals create things, termed “Making” by some, and how doing this has links to learning in and outside the museum.

Project Timeline



We will invite groups of Families to participate in the project events. Facilitate community listening sessions to better understand the museum’s value to members of communities of color and understand how “making” happens in various participant communities.

The purpose of each project event will be different:

- o Registration & Listening session (Aug/Sep 2014): Share your views about science, engineering, learning leisure time, and the museum.
- o Workshop (Fall/Winter 2014): Take part in one or two ways in these workshops:
 1. Collaborate with museum staff to bring your ideas to create interactive “making” activities. This involves an orientation meeting on 10/29 and three Saturday workshops on 11/15, 11/22, and 12/6.
 2. Large group workshop to Play, Tinker & Make together and explore ways you can do this at home and at the museum. Join us on 12/6 any time between 12:00-4:00pm and a yet to be determined date in February.
- o Saturday Showcases Round 1 (Spring 2015): Attend and share your activities with the public at the museum. Tentative dates are 3/7, 3/21, 4/11, 4/25, 5/9 and 5/23 all from 12:00-4:00pm.
- o Saturday Showcases Round 2 (Fall 2015): Attend and share new and potentially revised activities with the public at the museum. 10/2, 11/7, 12/5.
- o Final Celebration (Spring/Summer 2016): Celebrate everyone’s work on the project and all that we will have accomplished together! Date to be scheduled later.

During or after each event, we will ask the different members of your family group to do a brief interview or survey with someone on our project team, as part of a larger research study we’re doing on the project.

Appendix D - Family Group Registration Session Agenda

8/14/14 6:00pm - 7:30pm

Argon Room

Category	Staff Lead	Details
Food (Lancer)	Rich	order Sandwich wraps by Wednesday Aug. 6th
Set-Up	Rich	contact Paul Sawyer with details
Parking Passes	Bilir	Send e-mail ASAP to parking@smm.org and copy me and Rich
Meeting passports	Bilir	-½ sheet include Activate Table, Volunteer SignUp Table, Marketing Table, Badges, and Research Table - stamps for passports (ed storage)
Childcare	Rich	The Whats: Preschool - 1st grade activities
Badges	Robby	inform Richard/VRS @ 4pm
Lobby greeter	Rich set up table	Get table set up in lobby (Paul Sawyer)
Project folders	Rich get folders	SMM folder w/ info in it - passports, SMM brochure, 1 pager of project info - and place to put the info they get at the session
Agenda	Marjorie & Robby & Community Partner member	Welcome and Intro - Project background (Why are we doing this?) - Explain role(s) of family group members - Explain today's meeting goals Activate slideshow
	Thai/Keith	Activate/Programming Table
	Thai	Volunteer sign up & benefits Table
	Lori	Marketing Table
	Chris/Eric	Badges
	Lauren/MEs	Research Table - complete IRB consent

Appendix E - Assessing the Museum Final Draft

Family Group Participant Access

Thank you for participating in the Making Connections project! The time and effort you devote to Making Connections is invaluable; we hope you'll take advantage of the access that it provides to you in return for your participation.

Here's what you need to know to take advantage of your FREE admission to the Science Museum:

Registered family groups can visit the general exhibits and Omnitheater for FREE during regular museum hours, as well as take advantage of free parking and a discount in the Explore Store. Your participation also allows each family group **4 free tickets for the MUMMIES exhibit.**

- To take advantage of these benefits, a registered ADULT must be present to show his/her identification badge to cashiers in the Box Office, parking ramp, and Explore Store.
- We recommend advance reservations whenever possible to ensure that you get tickets for show times that best suit your schedule.
- To make reservations in advance, call (651) 221-9444. Tell the Call Center representative that you are a Making Connections project participant and would like to make a reservation for members of your family.
- To take advantage of FREE parking in the Science Museum's ramp, show your badge to the parking attendant when you exit. During events (sporting events, concerts, and other events), you may be asked to pay for your space on your way into the ramp. Simply show your badge to the ramp attendant to gain access.
- Ramp entrances are on Kellogg Boulevard across from Central Library or just off Chestnut Street.
- To take advantage of your 20% merchandise discount in the Explore Store, show your badge to the cashier when you check out.

In addition to free admission for you and your registered family members, you are entitled to share up to 14 FREE general exhibit and Omnitheater passes each day with anyone you would like.

- Access these passes by calling (651) 221-9444 (guest pass ticket transactions must be made via phone). Tell the Call Center representative you would like to reserve tickets using your allotment of free guest passes. You will receive a reservation number to share with your guests. They will need this number to claim the tickets at the Box Office Will Call window on the day of their visit.
- Note: Guest passes do not include free parking.
- Contact Robby Schreiber (rschreiber@smm.org or 651-221-2589) if you would like to set up a visit for a group larger than 14 people.

Appendix F - Listening Session 1-Pager

Making Connections is a museum-wide project aimed at engaging local communities of color and American Indian communities in a collaborative process to co-create Maker-style activities for the public. The Listening Session is essentially a focus group. The community partner member will facilitate a conversation with members of the family groups. This conversation will focus on the family groups' relationship to the Science Museum of Minnesota and their thoughts and connection to Making. We don't expect anyone to speak on behalf of their entire cultural group, but instead they should speak from their own individual experiences and family situations.

Family members who have not yet registered CAN participate in the Listening Session. We will have a staff member available to help them complete the IRB consent form.

Museum staff (3-4 individuals) will be present at each session. They will fulfill the following roles:

- Assist with setting up the Listening Session space as you'd like it set up
- Can provide food and beverages for the session (let Robby know in advance)
- Will listen and take notes - only provide guidance or facilitation if you request it
- Can help adult family members who haven't yet formally registered complete the IRB (research) consent form

Conversation questions

Relationship to SMM

- What do you think of when you hear "the Science Museum of Minnesota?"
- Based on your understanding, what happens at the museum?
 - How often do you visit? What draws you to visit? What prevents you from visiting?
- What are places you choose to spend time at with your family?
- What are opportunities the Science Museum of Minnesota could take to build stronger relationships with you and members of your community?

Reflect on Making

- What have you made lately? (built, fixed, created, customized, tinkered with, etc)
- What are things you have learned by making (building, fixing, creating, customizing, tinkering) or by watching others do these things?
- Who are makers in your community (family, neighbors, friends, school, work, church)?

How will this information be used...The notes from this conversation will be gathered together by the research staff group. These notes will be full of information that will help us find ways to be a place that is more valuable to more people. Today's notes will also be used to help us shape a better experience for you, over the course of this project and beyond.

Next steps

- Explain that the Play, Tinker, Make Workshops will be coming up in November & December (share the exact dates & times if you have received them).
- Families are invited to come participate in the workshops and visit the museum that day.
- Families or individuals could even help present a Making activity for the workshop with our Activate program staff.

Appendix G - MCX Saturdays - Check In Table Materials & Protocol

Materials

- Participant List - organized by community partner
- This Check In Table Materials & Protocol doc
- Green Badge Request Forms
- Check-in Table Sign
- Project info 1-pager
- Permanent markers & Pens
- Activate/MCX activity locations handout
- Activate activity materials
- *IRB paperwork*

Steps to Follow w/ each Family Group

- *WELCOME! Thanks for coming!*
- Ask their name(s) and community partner connection - Check the list & check off that they are here.
- Double check contact info accuracy.
 - ASK for address or phone if we don't have it on record—explain that one of these items is needed to validate gift cards if the complete a survey.
 - Need a Badge? Green badge request forms for anyone who still needs a badge issued. Call VRS to see if they can create a badge for the individual. Do NOT direct them to the box office.
 - *Need IRB consent form signed? If yes, have Rich or Lauren explain.*
- Give blank name tags for visiting members of the family group.
- Have participants go to Box Office to get wristbands, Omni and/or SPEX tix.
- Remind participants to see the Play Tinker Make activities and then come back to complete a survey by no later than 3:30pm.

Appendix H - Relationship Ripples

We were honored to be in relationship with each community partner on this project. Depending on their time, energy, and resources community partners (CP) engaged with us in a variety of ways throughout the project. Their commitment to the project was deeply evident in the ways they showed up to many meetings and events. Some of the partners even extended their ideas and engagement to other areas of the museum. Here are brief narratives illustrating our relationship and experience with each community partner throughout the project and beyond. We have removed identifying personal information to honor confidentiality established at the beginning of the project.

Community Partner #1 and #2

CP#1 held a dual role as family engagement and events staff member within the Kitty Andersen Youth Science Center and a Community Partner. When she left her role at the museum she recommended Replacement to take her place as CP. CP #2 recruited additional families through her personal connections and connections through her work within Minneapolis Public Schools. We have maintained loose contact with CP #2, inviting her to museum events and activities.

Community Partner #3 & #4

Previous to project CP #3 was connected to SMM via Joanne & African Americans in Science Fusion event and on the **RACE: Are We So Different?** exhibition. They brought youth and families from their out of school program to share their work & see others work at museum. CP #3 initially joined the project but pretty quickly invited his wife CP #4 to participate. She attended meetings with him and in his place so they both ended up representing as Community Partners. After attending some Saturday events CP #3 & 4 asked if they could hold their out of school program gatherings at the museum occasionally so they wouldn't have to worry about extra transportation logistics from their site to SMM and then back on Saturdays. This worked really well and ended up with a mutually beneficial set up that insured we had family groups at the MCX Saturday events and they had free space to meet off site. This resulted in one of several "collisions" that CP #3 & #4 or their recruited family group participants had w/ other museum staff. They were set to use one of the classrooms on a Saturday and it was locked. They were questioned extensively by museum experience associate staff member rather than just being given easy access to their space. Another Collision occurred in the Explore Store when their family groups tried to get their discount. Staff member pushed back because he/she didn't know or remember that MCX participants received a discount equivalent to SMM volunteers. Rather than just give them the discount they pushed back and their words/actions were perceived to be rude and unwelcoming. CP #3 & #4 provided extensive feedback about their interactions within the museum throughout the project. CP #3 & #4 have continued to participate in the annual African Americans in Science Day and we are looking for opportunities to partner on a project that will more directly meet the needs and goals of their out of school time program.

Community Partner #5

Robby met CP #5 at a Beyond Diversity training put on by the Pacific Education Group. She was working at Maxfield Elementary through the Cultural Wellness Center. They next met through an initiative to provide the St. Paul Promise Neighborhood schools (Jackson and Maxfield elementary schools) with a free family night opportunity. This was a result of conversation that then council member, now mayor of Saint Paul, Melvin Carter III had with museum staff to identify resources the museum could provide for St. Paul Promise Neighborhood families. Robby worked for several years (2012, 2013, 2014) to host Jackson & Maxfield elementary school families at the museum on a Thursday evening in April.

Rich mobilized interns to provide a hands-on activity during a conference evening (2014). Life Long Learning staff started building out the family night model and continued to invite Jackson & Maxfield Elementary schools in 2015, 2016.

- CP #5 had expressed an interest in supporting evaluation work. Didn't end up with follow-through on that work, but it was an expressed interest from CP #5 and openness by Evaluation & Research team to create space for her to pitch in.
- CP #5 recruited families of students who attended Maxfield Elementary and other families within Minneapolis and St. Paul. She worked with a Life Long Learning department colleague to invite Promise Neighborhood families to a 2016 spring Family Night at the museum.
- In early 2017 we worked with CP #5 through her work at the Cultural Wellness Center on two projects: the E3 21st century skills evaluation framework and an educational outreach opportunity. We contracted with the program to have 2 community engagement interns develop hands-on science activities that relate to basketball as part of a new partnership with the new St. Paul Promise Neighborhood athletic league.
- We continue to stay in touch and invite CP #5 to museum events and activities.

Community Partner #6

Joanne met CP #6 while he was being mentored by a former Science Museum Trustee. CP #6 was a principal and director of a local charter school at the time we worked with him. Joanne had met several times subsequently to discuss ways in which the SMM and his school might partner. An initial partnership was formed by Kitty Andersen Youth Science Center Middle School program manager Emmanuel Donaby to lead the Design Team program at the school. It started out by providing a summer camp experience for the youth. During the next school year the school became a program site for the Design Team during the school year. Emmanuel started a Freedom school with a STEM component in 2015 & the school became the site for Freedom School programming during the summer. CP #6 volunteered at several museum events separate from the MCX project. CP #6 became director of a different school in 2015-16 school year. He maintained connection to the project and continued to engage families from his former school whom he originally recruited, and he recruited additional families from the new school community. We are exploring the possibility of having after school STEM programming or family specific programming at this school.

Community Partner #7

CP #7 was a Project Spirit community liaison for St. Paul Area Council of Churches while on the project. We were introduced to Dawn via a family connect who was a community advisor for the RACE: Are We So Different? exhibit development and subsequent programming. CP #7 introduced us to staff with the Harvest Schools network and the schools participated in a family night event in spring 2016. CP #7 has a big idea for SMM to host a science fair for young people from Harvest Schools network and possibly other students. We continue to stay in touch and invite CP #7 to museum events and activities.

Community Partner #8

CP #8 joined the project to represent the Arts Us program. Arts Us is an Afro-centric, arts-based, out-of-school-time program based in St. Paul. Robby and Rich had relationships with Arts Us staff through their work in the Kitty Andersen Youth Science Center. We recruited other people—two different

directors—previous to her but they experienced rapid transitions of leadership during the beginning months of our project. CP #8 was a staff member/volunteer who remained consistent through these transitions. She worked to recruit Arts Us family groups. CP #8 volunteered at a 21+ Social Science event early in the project after learning about the opportunity through the museum’s volunteer newsletter. We didn’t find ways to expand our relationship, but the museum’s Kitty Andersen Youth Science Center has had close programming ties with Arts Us and continues to maintain them.

Community Partner #9

Joanne knew CP #9 through her previous work as a community advisor to the *RACE: Are We So Different?* exhibition project. Through a connection made by CP #9 we had Kitty Andersen Youth Science Center interns bring hands-on STEM activities to American Indian Magnet School pow wows in winter 2016. We continue to stay in touch and invite CP #9 to museum events and activities which she attends quite frequently with friends or family members. Specifically, CP #9 attended several Making Connections Community Gatherings.

Community Partner #10

Previous to project CP #10 was connected to SMM via Rich, Robby. CP #10 was a school liaison and chaperone who supported 4th and 5th graders when they visited the museum for the I Can Be An Engineer! program. This program ran for 3 years from 2010-2012. Because of this relationship, Robby & Rich invited CP #10 to join this project. CP #10, a native Spanish speaker, offered and provided support with translation (for families & project documents). She also was very active in bringing families to the museum and helping them navigate a very new space. CP #10 was hired by the Evaluation & Research in Learning department at the museum in summer 2016, but left the role within a month for personal health reasons. CP #10 also co-presented about her role in the project alongside other project staff at the Midwest Association of Museum’s annual conference in summer 2016. CP #10 retired and moved out of the country but we remain in touch.

Community Partner #11

Joanne knew CP #11 through previous work together. CP #11 was a Program Director at Minnesota Philanthropy Partners and a community advisor to the *RACE: Are We So Different?* exhibition project. This relationship continued as CP #11 changed professional roles and is now the president and CEO of a large non-profit organization that serves and supports Latino community members. Highlighting the relational networking that occurred throughout the project, CP #11’s son was hired as a part time museum evaluator during the 2014/15 school year and a MakerCorps intern summer 2015. Joanne invited CP #11 to be a partner in the National Science Foundation funded Celebrating Urban Birds (CUBS) project.. Rich hosted high school interns from CP #11’s organization Youth Achievers program in the 2015-16 school year and summer 2016. The Museum was invited to participate at the organization’s Fiesta Latina annual event in 2016, 2017, and 2018.

Community Partner #12 and #13

CP #12 first connected through former colleague at the Hmoob (Hmong) New Year celebration in St. Paul in 2014. CP #12 recruited CP #13 as a family participant. Due to personal reasons CP #12 began to have less time for the project and ultimately moved out of state. Community Engagement staff conversed with CP #12 about CP #13 being a possible CP to fill her vacant spot. CP #13 was actively involved in the Making Activity Design Workshops led by the programming team. CP #13 worked with programming team members to develop a making activity for the Showcase Saturdays. CP #13 facilitated her hands on making activity on the museum floor: making story cloths & decorative bags inspired by traditional Hmong

embroidery. CP #13 starred in a video made by project staff on the intersectionality of making & culture. CP #13 also co-presented about her role in the project alongside other project staff at the Midwest Association of Museum's annual conference in July 2016.

Appendix I - Making Connections Volunteer Information

Making Connections Volunteer Information

What: We are piloting a new volunteer role, called Making Connections Volunteer, this summer. These volunteers will bring family groups² who have never visited the museum before (they have committed to bring at least three family groups this summer) and help them navigate their first-time Science Museum experience. Visiting family group members will receive free admission to permanent exhibits and discounts to Omni and Pixar and validated ramp parking. Family group members and their volunteer host will each be asked to participate in an online survey after their visit to help us learn more about their experience

Why: Through the Making Connections project we learned about the power of relationships in inviting and welcoming people into the museum, especially those who are less represented as museum visitors (e.g. people of color & people with limited incomes). We saw that the most active project partners and family group participants brought new people with them and helped them navigate into and around the space. We developed this new volunteer role to build on this relational work people naturally did throughout the project.

Who's volunteering: You. We are recruiting adults (18+) from communities underrepresented as museum visitors. Once you apply you will complete a basic SMM orientation with volunteer department staff and a more specific orientation with community engagement staff - Robby Callahan Schreiber or Bilir Kasuh.

What's my incentive: Access to free museum admission and Omnitheater tickets; free parking when you volunteer; 20% Explore Store discount; sharing the love of science learning with others.

Who's coordinating?: Bilir Kasuh - bkasuh@smm.org, Robby Callahan Schreiber - rschreiber@smm.org

When: Visits for this pilot project will occur between May and August 2017.

² Family groups are limited to 14 or fewer people. We allow individuals to define "family" as they see fit.