

INTENSIVE PARTICIPATORY ACTION LOOP WITH YOUTH

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Abstract

To support young women's participation and development of agency in a community makerspace, the AAMASE project researchers and participants developed and employed participatory design principles, activities and tools. While these principles, activities, and tools are shared briefly, this paper focuses on the Intensive Participatory Action Loop (IPAL) innovation developed and implemented to ensure that youths' experiences of the pedagogical practices and curricular materials were centered in the final manifestation/iteration of the curricular guide. This paper presents the method as well as data and analysis of young women's participation in the innovation. The IPAL activities presented here took place over a three-day intensive data collection with three youth participants and three researchers (including an undergraduate student). Multiple innovative methods were used to gather and explore youth insights into the near final draft of the activities and curricular guide. Youth engaged in artifact creation (timelines of their participation), interviews, whole group discussions, reactions to quotes from adult mentor interviews, and a making activity. This data was used to create a final iteration of the curricular materials and to inform future trainings to ensure the centrality of the youth voice.

Keywords: *Participatory design, youth, maker education, agency.*

1. Introduction

African American Young Women in Making to Engage in STEM and Entrepreneurship (AAMASE) aimed to engage young African American women in Making and entrepreneurship activities emphasizing STEM disciplinary practices in a participatory design research framework. The AAMASE program served mostly 13–18-year-old young women in the southeastern United States. The project was a collaboration between TERC, a STEM education research and development organization, and the Forge Greensboro, a nonprofit community makerspace. AAMASE engaged youth in making and entrepreneurship-based learning activities that highlighted STEM disciplinary practices to support youth participants' agency while building their STEM content skills and awareness of STEM careers. In a participatory design research framing, participants learned how to design and build objects and develop business pitches with guidance from laser cutting artists, 3d printmakers, ceramicists, woodworkers, metalworkers, resin artists, sewists, and entrepreneurs. The program served approximately 60 youth over two years in various programs, including school day programs with school group and weekend programs with youth groups. Throughout implementation with each group, youth feedback was actively sought through interviews/conversations with youth and summative conversations at the end of the programs.

To gain a deeper understanding of program participants' experiences of the AAMASE program, the research and curriculum development team developed a special intensive workshop. For this workshop, three previous participants were engaged over three days (approximately 12 hours total) to provide feedback and suggestions on the AAMASE program structure and AAMASE program activities. The AAMASE team and the participants reviewed activities together (e.g., a session where participants design and build a wooden notebook cover using a laser cutter) and the participants shared their engagement with the activity as well as any suggestions for improvements.

2. Theoretical framework and literature review

The AAMASE program and the IPAL that is this paper's focus were created within a participatory design framework with agency as a particular focus (Rafanan et al., 2025). Participatory design (PD) emerged from workplace democracy movements based on the principle that the users of designed systems should be active participants in the design of those systems. (Muller & Kuhn, 1993). Within educational contexts, researchers have extended this principle by paying particular attention to issues of equity and identity. The question of power within participatory processes was taken up by Bang and Vossoughi (2016), who argue that conventional design-based research reproduces inequity by failing to attend to positionality and power. They position participatory design research (PDR) as a more expansive methodology, arguing that PDR maintains a commitment to advancing fundamental insights about human learning and development through explicit attention to what forms of knowledge are generated, how, why, where, and by whom. Coenraad, Palmer, Franklin, and Weintrop (2019) advanced understanding of PD as a context specifically suited to youth identity development, demonstrating that participatory design is an essential design strategy for creating artifacts and experiences that reflect the voices of the population being designed for and with, and that the participatory design process can serve not only to research resulting artifacts but also as an empowering activity for those who participate. Their case study research with African American girls revealed that design activities function as identity enactment venues, allowing participants to reflect current identities, project aspirational future selves, and apply those identities to materials created for peers.

3. Process

To gain insights into the participants' evaluation of the AAMASE program structure and their comfort with AAMASE facilitators, the AAMASE team engaged the participants of the IPAL in a number of activities. Youth engaged in many different structures to provide feedback over the three days in order to give them adequate and varied opportunities to share their thoughts. We wanted to be sure that youth had a method for sharing that was comfortable to them. The activities included whole group conversations, 1-1 interviews, writing, drawing, and engaging in making activities together for information conversation. One novel activity was sharing anonymized quotes from interviews with facilitators and asking the participants how the quotes aligned or didn't align with their experiences of the AAMASE program. Finally, we interviewed each participant. This intensive workshop allowed the curriculum developers to more meaningfully integrate youth feedback and voice into the final iteration of the curriculum which was designed for dissemination.

3.1. Timeline warm-up

Youth engaged in art to reflect on their experience, drawing timelines to represent their participation in the AAMASE program. This was a warm-up activity at the beginning of the intensive designed to allow youth to enter a reflective mindset on their participation over the multiple rounds of the program they engaged in. One youth created a tree to demonstrate where she started off in the program in the roots of the tree to where she ended up in the top of the tree. Another youth made a list of all of the activities she had done in AAMASE on one side of her timeline, and then the things she liked the most on the other side (Figure 1).

Figure 1. Two youth timeline projects.



As with all AAMASE projects, this was an a design project with many different ways youth could ultimately complete it, as seen in the very different directions these two youth took the prompt. This activity helped ground youth and begin their engagement in the Intensive Participatory Action Loop (IPAL).

3.2. Written reflection

Youth completed a written reflection on their own responding to three questions:

- Which AAMASE lesson was your favorite? Why? Tell a story about the lesson.
- What advice would you give to a brand new AAMASE participant?
- What advice to AAMASE mentors would you give?

These questions were designed to ground youth in their experiences in the program and position them as authorities on their experience and the AAMASE program. By framing the second two questions in terms of offering advice, we hoped that youth would be forthcoming about things that didn't go well or to their liking. All three youth listed pottery as their favorite lesson as it was something they had wanted to learn. As Addison wrote, she "was already pretty interested before hand [in pottery] so when I actually got to do the things I want and more was really great." Addison's reflection indicates that the way the program selected making disciplines that youth expressed interest in.

Advice to future participants: All of the participants gave advice to a hypothetical new participant around emotions: Addison encouraged new participants to not be afraid to do something different or try something new. Amara said not to stress about projects because the mentors are willing to help. Serena said she would tell them to not be afraid to get out of their comfort zones because they will be asked to do things they have never done before. This emphasis on emotions indicates that these three participants are remembering the emotions they felt engaging in AAMASE lessons. They want new participants to anticipate the emotions that may come up and to engage fully in the program with support.

Advice to Mentors: In AAMASE, most sessions were led by expert makers who were called mentors. In their written reflections, youth gave very positive feedback to the mentors and expressed their appreciation for the mentors' efforts. For example, Addison wrote, "Keep doing what you're doing, you're dedication to the program(s) is very appreciated and I am very glad to be apart of this research project." Amara wrote: "I really don't have any advice to give them they are a support system, they are always willing to talk about anything, they always let us have an opinion in the things we do and provide us with the things we need. Love love love them!" Serena wrote: "Keep DOing What You Guys Are Doing Don't Change ANYTHING, You Guys Are Amazing And Did Amazing Things For Me And My Family. I Appreciate You Guys So Much Keep Up The Good Work." While all of this feedback was very positive, we were hopeful that this opportunity for youth to write feedback to mentors instead of providing it verbally might open up an opportunity for critical or negative feedback that they might have not been willing to provide verbally.

3.3. Quote reactions

During the AAMASE program, adult facilitators and mentors were interviewed about the program periodically. During the IPAL youth were asked to read and react to selected quotes from these interviews. This was an effort to triangulate the rationale for program revisions to ensure that the comments made by adults were backed up by youth confirmation. One adult facilitator commented in an interview on the freedom offered to youth: "we gave them the freedom to make whatever they wanted, instead of putting them inside of a box and making them make very specific things." This facilitator was highlighting a key design principle of AAMASE, to give youth the flexibility to make what they wanted. In order to make sure this went beyond an ideal and was actually experienced by youth, we asked the three youth participants to comment on this quote. Youth agreed that they had the freedom to make what they wanted, and commented on both the benefits and downsides of this freedom, which the facilitator didn't not explicitly mention. The youth commented that with this freedom to design their own items, a disadvantage was that if they didn't like what they made they couldn't "blame someone else" since it was their own choice. One youth also commented that it could be challenging to fix a project if you "mess up" because there weren't examples to "go off". This had been an intentional learning activity design choice to not provide completed examples that might constrain youth creativity, and it was helpful to learn how this impacted youth. All youth still agreed that they preferred the openness and choice offered by the program.

3.4. Lesson-by-lesson Feedback

Finally, as a group, youth and the adult researchers went through the full written curriculum (12 lessons), projecting on a large screen the slide versions of the lessons with researchers taking turns noting what the youth said. By projecting the actual materials that the youth had seen when they experienced the lesson originally, youth were reminded and grounded in their experience in order to reflect and provide feedback. The youth provided feedback on the content of the lessons and experience in the program.

Sometimes, the participants provided conflicting feedback. For example, in one of the first sessions, a video on creativity was shown, and one youth reported that she is not much of a video watcher and preferred things to be hands-on, while the other two enjoyed the video, one finding it helpful to get her mind going.

Youth reported that they enjoyed the structure of the lessons, which always began with a recap from the week before and a slide with the schedule of completed lessons and lessons that were upcoming. As Addison shared, “Recap was helpful and the schedule to remember what we were doing and what we were doing next, and if people weren't there they could see what they missed, or could see something coming up that they wanted to do and could move things around if they were going to miss that week.” Youth also reported enjoying the warm-ups for helping them wake-up in the mornings (when their program was scheduled). They also liked the reflection periods at the end of each lesson. These reflections were designed to be part of the data collection for the project but also served to get timely ongoing feedback from youth. Youth answered these questions either as a whole group in a debrief or individually in short interview videos they created:

- Share one thing you're proud of
- Share one challenge you ran into today
- What making activity are you excited to try?

During the IPAL, we asked youth to share what they thought the lesson designers/facilitators learning goals were for some of the lessons. This helped us to see what youth got out of each lesson and evaluate if that aligned with the original learning goals the designers had. One of the AAMASE sessions included a guest speaker talking about entrepreneurship and the IPAL participants were asked to reflect on that session. The youth shared that they would have preferred to hear from a teen entrepreneur rather than an adult. We had not considered this before and this advice was integrated into the final materials.

We also asked IPAL participants for feedback on the timing and flow of the program. The first few sessions of an AAMASE program consisted of a “making discipline sampler” where participants would engage with a making discipline for just a single session. The goal was to provide participants with a breadth of making experiences so that they would have a broader foundation from which to choose a making discipline to develop more expertise in as they met a kind of capstone final design challenge later in the program. The IPAL participants reported enjoying the variety. For example, Addison said, “if you didn't like one thing...one could switch, at the end [we] did the one we liked the most.” During AAMASE, we had especially wanted to make sure that participants didn't feel stressed or rushed in the program around the final project. The IPAL participants all reported feeling that they had enough time in the three sessions dedicated to the final project.

4. Limitations

This implementation was a pilot. Relatively few participants were involved and all three had participated in the same iterations of the AAMASE program. The participants of all AAMASE instantiations would have had a broader experience of the program and would likely have contributed more varied perspectives on the program and the curriculum. During the IPAL, participants did not have access to the notes we were making to capture their reflections. If we were to do it again we would project a copy where we put youth notes visible to them as we were going through this so they could see how much the researchers valued their comments and to make sure we were capturing them correctly.

5. Conclusions

Programs that seek to employ a participatory design framework to integrate youth voice in a meaningful way should consider not only multiple activities to gather youth feedback but also multiple modalities for that feedback. The IPAL methods shared in this paper represent some ways to gather and act on youth feedback. Intensive and iterative, this method allowed for time to follow-up on comments and ideas, and triangulate by having many data sources. Participatory design techniques provide the opportunity to disrupt the historical power dynamics between researchers, instructors and learners but if learner feedback is limited to only the beginning of the design process, opportunities are missed. Participatory design activities should extend towards the very end of the design process. Designs are a way of telling a story for learning, and youth participants should have editorial powers for the stories that they are weaving.

Acknowledgments

The authors extend our gratitude to our participants and community partners for their willingness to participate in our research and share their making and learning experiences and expertise. This paper is based upon work supported by the National Science Foundation through the ITEST Program (award #2148543). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

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