”They Don’t See Girls”: Construction of Identities in a Maker Program

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Research shows that there is an increase in participation of girls in high level STEM classes [1]. This positive trend, however, doesn’t apply to all STEM fields. While, for example, girls’ participation in biology or biomedical engineering classes is similar to boys’, this is not the case for physics or mechanical engineering [2], [3]. The numbers are even lower when we look at girls from under-represented communities. In this case the participation numbers are lower for all STEM fields and decrease as students move from high school, to college, and to work [4].

A growing line of research aims to understand the challenges girls from under-represented communities face participating in STEM settings both within informal and formal settings [5]. Brickhouse and Potter [6] followed two young women of color and compared their attempts to negotiate their school environments in the construction of successful computing identities. This comparison emphasized the way learning settings provide access to desired identities while privileging certain ways of participating that are not desirable or available to everyone. Carlone and Johnson [7] focused on the aspect of recognition in the construction of identity by comparing women of color in research science trajectory with women of color whose trajectories as scientists were disrupted. They demonstrated that, while the first group received recognition from meaningful others in the scientific community, the women in the disrupted group desired recognition but often did not receive it. Recognition was also central in Barton et al.’s [8] longitudinal study tracing the identity work of girls from nondominant backgrounds. They found that girls imagined for themselves possible futures in science when their identity work was recognized and scaffolded while they engaged with science in formal and informal learning settings. These studies contribute to a growing realization of the complex work girls face in constructing and sustaining a disciplinary identity in STEM. These researchers, along with others, call for further studies to enrich our understanding of the aspects of identity construction, especially with regards to the interaction between gender, ethnicity, and STEM in the transition to adulthood.

One avenue that holds promise to transform STEM learning by breaking traditions of what it means to engage in STEM is making [9]. Making brings with it an opportunity to engage youth with STEM in meaningful ways that could, in theory, provide access to groups who did not see themselves as part of these fields before [10]. One such opportunity is the potential reorganization of settings and the introduction of new and modified tools and practices to break the gendering of STEM [11]. One approach, for example, is the design of electronic textiles in an attempt to blend practices that are traditionally associated with women (sewing) with engineering practices that tend to be associated with men (electronics). The blending of these two sets of practices is supposed to open access to girls to practices that previously were closed to them [12]. In addition to new inventions of products, researchers point to disciplines that have the potential to provide access for girls’ participation in STEM. Peppler [13] ascribes such characteristics to the discipline of design, claiming that it operates in the intersection of art and STEM and therefore could expand the fields for the participation of groups who before had no access or option to see themselves as part of these communities of practice.

Another long-established path in education, is providing single-sex spaces as a way to avoid the negative stereotypes on the abilities of girls and youth from under-represented communities in STEM [14]. Support for single-sex STEM environments come from research on co-ed group projects that showed that boys tend to take on more valued project roles and control access to tools and materials, while girls end up in administrative roles [15], [16]. To evaluate the success of a single sex approach, researchers have examined single-sex after school programs and special girls-only programs within co-ed schools. For example, Fadigan and Hammrich [17] examined a museum program for girls and showed that the program created a space for girls that supported a positive sense of self.

On the other hand, there are practitioners and researchers that critique the idea of separating girls by saying, for example, that girls need, eventually, to work in mixed spaces therefore it is best to focus on their ability to navigate successfully such environment [18]. Others claimed that single-sex schools could not demonstrate that there is a difference between girls from co-ed to single-sex schools in their preferred subject of study. They explained this by emphasizing the influence of broader social and cultural discourses that equate certain practices with masculinity and portraying them as "belonging to men" [19], [20]. While this debate is still unresolved, a more nuanced discussion should focus on the conditions in which single-sex spaces work are needed and the group of girls that will benefit from such settings.

This study explores the way girls make meaning from their decision to participate in a girls-only maker space in relation to their STEM-based experiences in other settings. By examining the goals girls from underrepresented communities had for participation in a girls-only maker program, we can better understand their mindsets upon entry into the program. We explore how the girls imagined their participation, what aspects of the program piqued their interest, and how their everyday experiences in their home communities affected their aspirations for their participation in the program. Specifically, we wondered who the girls perceived themselves to be when they entered the program and who they hoped to become as a result of being in the program. We draw on entrance interviews and report the overarching themes that emerged from the collective interview data.

Theoretical Framework

Our understanding of learning is rooted in sociocultural perspectives that view learning as change in one's participation in a community of practice. We follow the approach of identity construction as an always evolving process negotiated in context and informed by history and experiences [21]. We define *identity work* as a collection of stories about a person that are constructed in an attempt to make sense of one's life within a certain context [22], [23]. We define identity work as *disciplinary* when these stories are in respect to a certain discipline (e.g. engineering, mathematics). We refer to *gender* identity work when the collection of stories is constructed in an attempt to make sense of what it means to be a girl in relation to the ways one perceives what it means to be a girl in society.

Throughout this report we use the terms "girls" and "young women" to describe the participants in the program. We chose to use these terms to adhere to the terms used in the program advertisement materials and within the program itself. We treat these terms as social

constructions. We also acknowledge that the term "girl" is being used by researchers in girlhood studies as an act of reclaiming the term "girl" and expressing resistance to patriarchal use of it to position and signal lower status [24].

Guiding our interpretation of girls' interviews is Holland's et al. [25] sociocultural identity theory that is summarized in the book, *Identity and Agency in Cultural Worlds*. In their work, the authors described four interlinked contexts for identity work: figured worlds, positionality, space of authoring and world-making. Figured worlds are a "socially and culturally constructed realm of interpretation in which a particular set of characters and actors are recognized, significance is assigned to certain acts, and particular outcomes are valued over others" [25]. These are contexts for meaning making and self-understandings. The second context, positionality, emphasizes the constraints within figured worlds where certain positions are available, and these can be accepted, rejected or negotiated by the participants. Participants take up positions and engage in discourse to develop their identities. Therefore, the third context of identity work is the space of authoring. Different stories are available to individuals from the different figured worlds they are part of. In this "space" people continuously engage in sensemaking through a dialog between complementary and contradicting voices. The fourth context for identity work is making-worlds or as we will refer to it in this study, play worlds, which relates to the ability people have to create new figured worlds through play and imagination [26], [25], [27]. To further understand the link between imagination and identity work we follow Wenger's [28] view of imagination as one of the modes of identification: "getting a panoramic view of the landscape and of our place in it…looking at ourselves and our situations with new eyes…it is about not accepting things the way they are, about experimenting and exploring possibilities."

To support our interpretation of the place of the program in girls' life we use the conceptual construct of *wispy communities*. This construct comes from the idea of micro-publics - places like school or church in which people are gathered for the purpose of organized activity [29]. In these places people gain the opportunity to learn and interact in different ways than they are used to in their families and close communities and are granted the opportunity to belong and become in new ways. Building upon this concept to examine less tight and temporary gatherings like festivals, workshops and camps, Fine and Scott [30] developed the term wispy communities. These are temporary figured worlds in which participation is limited in time and space and takes place with a group of people who put on hold their everyday lives so they can meet and interact with others that have common interests and shared concerns.

Together, these constructs form a theoretical framework that allows us to understand that, in telling their stories, girls are trying, in the moment, to make sense of their experiences within the specific context of the interview. Telling one's story in an interview is also an act of improvisation, an attempt to construct identity using the cultural resources they have in their disposal [23], [25]. This construction opens a window to the way they figure themselves within the worlds they are part of and sheds light to the way they imagine the program as a play-world with the potential for experimentation and rehearsal with possible identities.

Methodology

This study is part of a larger research project that examines the interplay in the construction of identities within the context described below.

Context

This paper reports on a weeklong summer maker program for high school girls. The program took place in a girls-only space for design and making that uses a distinctive approach to give girls the opportunity to design and build large physical objects using a combination of power tools and digital fabrication, by using practices, tools, and materials that are traditionally seen as "masculine" or "belonging to men". The space is run by female mentors with backgrounds in design, architecture, and engineering. It operates all year long, housing after-school and summer programs. Participation in the specific summer program reported in this study was free. The length of the program was five days, each from 9am to 4pm, and included lunch. Attending the program involved a competitive application process. Out of more than 50 applications the program directors chose 24 participants that were separated into two different sessions of 12 girls each. The separation between the sessions was based on familiarity with the space, so that there was a group of old timers or girls who had already spent time in the space in the first session and, other than 2 girls who were familiar with the space, there was a group of first timers or girls who had never been in the space in the second session. In this paper we focus on the girls that participated in the second session. The ages of girls in this session ranged from 14 to 18 (four girls were in the summer before their senior year in high school) and all the participants came from underrepresented communities (5 were Hispanic, 3 were African American, 2 were Asian, and 2 belonged to other groups). Other than one girl who lived in a rural town, all girls lived in cities.

In addition to the disciplinary learning objectives of the program that focused on introducing girls to design and engineering principles and methods through hands-on experiences, the mentors also created a girls-only space to provide a supportive place for girls to feel confident, build relationships with other girls and engage in discussions about gender and feminism.

Data Collection & Analysis

Phase 1, Collection and Analysis of Interview data: At the beginning of the program we conducted, and audio recorded a 15-25 minute interview with each girl. The purpose of this beginning interview was to get to know the girls, their interests and reasons for coming to the program, and to establish a relationship between the girls and the researcher. In our analysis, we do not treat the girls' stories as veridical reports of events as they happened, but as windows to the way girls experience their lives and construct them in the specific context of the interview. The interviews were semi-structured; while we were interested in several specific questions, we mostly wanted to see where the girls went with their stories to help us understand how they make sense of their participation within the larger context of their lives [31]. Each interview was transcribed in full.

Once all interviews were transcribed, we read each transcript to get a sense of the girls' stories as a whole. To give a place to the unique meanings each participant gave to her participation through her specific story, we started the analysis attending to each interview separately, using both open coding and theory-driven coding. We attended and marked places in which girls positioned themselves or

described certain roles in different settings/figured world. We looked for expressions of significance (marked in different ways, for example by choosing to indicate a certain detail that is not directly linked to a question or making connections between events or making generalization). We paid attention to the different forces driving the story and the relationship between different sections within each interview, such as such as the way girls talked about their experiences, what they attributed to the power of structures in their lives, how they positioned themselves in light of these structures, and how they described their decision to participate. Moving from one interview to the next was an iterative process [32] that led to the creation of emergent themes.

Phase 2, Analysis of application material: To apply for the program, each girl had to apply using a form in which she had to answer three questions that asked her to tell about herself, her interest in making currently and in the future, and her community. In addition, a parent submitted a form with some administrative information and a statement on their daughter's participation in the program. We used this data to triangulate findings from interviews. We have analyzed girls' application material using the themes from the interview data analysis. The parents' answers were treated somewhat differently as they provide an additional story about the girls, adding to the first-person stories or first-person identity, third person stories or third person identity [22]. For each girl, we coded parent answers to see how they contributed to and related to the themes.

Findings & Discussion

In this section we present the results of our analysis of the way girls imagined their participation in the program and how they made sense of their decision to participate in relation to other aspects in their life. Telling their stories within the interview was part of their identity work in the context of the program.

We organize our findings and discussion into two themes that capture our interpretation of the meaning girls gave to their participation in the program as an opportunity to experiment with possible desired identities in a way that is not available for them in their daily lives: 1) the program as a play world to explore "what kind of girl am I?", and 2) the program as a play world for experimentation away from one's community and social network. In the following sections we develop these themes in more detail. For each theme, we give few examples using some of the girls' own words.

A play world to explore "what kind of girl am I?"

We divide this theme into two sections. The first demonstrates the way some of the girls experienced the interplay between the construction of their disciplinary identity and their gender identity. The second section focuses on the way girls viewed their participation in light of the girls-only aspect of the program.

*"They don't see girls": two conflicting discourses***.** Talking about their decision to participate in the program and the aspects they found interesting, some girls alternated between describing their interests in making and building and positioning of these interests in light of social norms or particular experiences with members of their community or social network. This was especially true for Mili, a 14 year old Hispanic girl who came from a low-income, inner-city family. Mili

heard about the program from her father: “because ever since I was a kid, I always liked building stuff and assembling things and then my dad noticed that, so then he started searching up things I could do over the summer.”

Mili also described her love for taking apart and designing “useful things.” While getting recognition and support from her father, Mili received other messages about her proclivities: “I love getting down and dirty, working with my hands and doing stuff that people always say is only for boys. I’m tired of that.” Here, Mili expressed feeling constrained and frustrated by the narrow gendered positions she perceives available to her as a girl. There were other gendered practices that frustrated Mili. She compared her interest in making to another passion of hers, football. She described her desire to become a professional football player and the disappointment in realizing that there is no place for woman on this path. We interpret Mili’s decision to tell these stories as an act of realization that what was possible for her as a young girl (like playing football) is no longer possible as she becomes a young woman. Gilligan [33] describes this realization and inner confusion girls experience when during adolescence they go through a process of gender-related socialization in which they are channeled towards certain roles that are in line with cultural conventions of femininity that they did not experience in a younger age. Fortunately, Mili's father was aware of the constraints Mili was experiencing and supported her resistance to these norms. In his part of Mili's application he wrote, “I want her to be in space where she can explore her creativity and interest without anyone judging her or forcing certain social norms that I feel have held her back.”

While through Mili’s example we heard frustration from gendered social norms, the next example demonstrates specific descriptions of interactions with peers and social network. Inbal, a 17 years old Hispanic girl from a low-income family described her interest in design and architecture and the reason she decided to join the program: “That it was a program for girls mainly. ‘Cause architecture is like, people think of architects as just guys. They don't see girls.” Then she continued, linking it to a story about her friend’s reaction to her decision to study architecture in college: “I told him that I wanted to go try it. Like my first year in college, I wanted to see how architecture went, because I'm going to major in architecture. He was like, ‘But there's only going to be guys there.’ I'm like, ‘Whatever. I'll be the only girl then.’”

In these examples, we see Mili and Inbal positioning their decision to participate in the program as an opposition to other people’s perspectives. The use of “people” in their stories represented the voice of structure, of social conventions. In their stories, certain practices and disciplines were viewed as belonging to boys/guys, and either were not open to girls, or participation in them bore the risk of being an outlier and odd. The use of the word “people” was also an act of generalization – a move from a personal account to a general view of society and norms. We view the act of generalization as an act of giving significance and reifying a story from an event or series of events to a general view of society. Taking Holland et al.’s [25] view of identity work as a process of taking an authorial stance in the “arrangements or orchestration of these voices,” we view the act of transitioning from stories about certain events to statements about “people” an act of giving significance to the story in the context of participating in the program.

Across the interviews, every girl described her interest in making and all but one described active involvement in different modes of making. Some of the girls described making at home

following specific YouTube channels or as a mutual interest with a family member. For others, making was an integral part of their school as they participated in maker classes or followed a track in school. Eight girls described a specific STEM discipline as one of their career options. Half of the girls who came to the program described learning about the program from a supportive teacher who encouraged them in pursuing their interest in making.

At the same time, some of the girls described their peers as holding narrow views of who can participate in these practices. One such story came from Avishag, an 18 year old Hispanic girl from a low-income family who lived in a rural town and participated in the design and engineering track in her high school. She said of her teacher: "a person that first introduced me and motivates me to do this ... He sent me an email with a link to what it was … He just really believes that I have a lot of potential." She then described her experience in the high-level design and building elective classes: "It was only me and two other girls. The rest were all boys. It was like 27 people in a class, and just three of us were girls. Because none of the girls really thought that that was something that a girl would do." In this example, Avishag described the lack of girls' participation in the class not as a decision that stemmed from lack of interest, but as an internalization of certain gender-related social norms. At a different part of the interview, Avishag speculated that the girls in her school would have changed their mind if the elective class would have been a girls-only class. Avishag's story continued with a description of her elective class experience: "when the other two girls didn't come and it was just me, I felt really weird. I felt like none of them wanted to work with me. So, I would usually always do my own thing." Avishag described her sense of isolation that was directly linked to being a girl within the context of the class. While her school provided programs that were open to all students, and her teacher was a supportive figure in her story, she described a difference between the way she and her peers perceive what is available to girls and what it means to be a girl. On one hand, her "good student" identity gained its power from the recognition she received from her teacher in the design and engineering class, which strengthen her disciplinary identity. On the other hand, her actions as a girl were questioned by the girls in her school and boys in her class as a result of her participation in what they view as masculine practices. These stories show how disciplinary and gender identities do not always gain power by the same process or actors.

In light of the stories the girls chose to share, we interpret their decisions to participate in the program as an opportunity to engage in a place that potentially could support bridging these conflicts. In promotional materials, the program emphasized gender and girl-power discourse in a design and building space through statements like "exploring and learning about the power of building in our communities and as young women". Morel, a 17 year old Hispanic girl from a low-income family, described how she perceived the program. She took engineering classes in her inner-city school and described the classes as involving hands-on design and building challenges that led her to further explore the option of a career in Mechanical Engineering. She described herself as a shy person that, up to the decision to participate in the program, avoided joining programs outside her school. Morel described how her mother was happy to see that she was finally "getting out there". Her mother wrote in the application material: "it will encourage her to continue with her goal of becoming a mechanical engineer and succeeding in life." In Morel's case we did not hear stories about conflicts in her school in relation to her interest in engineering, but when she described what piqued her interest in the program she said: "It was on hands work like building. It was towards girls. It was about feminism… I guess it was like

realize you're worth more than people out there say." We interpret Morel's view of the program as a complementary experience that attended to both her disciplinary identity and gender identities and supported ways of composing them.

Gender related stories and comments appeared also in separation from stories about STEM related experiences. In the next section we demonstrate how some girls described their desire to work and be in the presence of other girls.

*"I think it will be good for me to interact with more girls": A play world that afforded safe experimenting of what it means to be a girl***.** The girls in the program were also at the age that girls figure out what kind of girl/young woman they are, in light of what is socially and culturally available for them [34]. In this section we look at how some girls viewed working alongside girls in a community of builders as an important experience they desired for themselves. For example, Batya, an 18 year old African-American girl who came to the program from a large city, explained that she took the time to reflect and think whether and how participation in the program would be beneficial to her. She described having conversations with her design teacher and several women in her family. Batya described that making and building was something that she was used to doing alongside her brothers: "Growing up I have all brothers. So being around girls and doing stuff that I would normally do with boys, it, kind of I guess, not changes my perspective, but widens it. So, I might be more comfortable personally just working doing things that I wouldn't normally do with girls with girls, that are more hands on." In this statement, Batya talked about the opportunity to work with girls that are interested in these "hands on" practices as an act of widening her perspective. She did not specify the nature of this perspective, but she speculated on feeling more comfortable. We interpret this widening of perspective to be an act of expanding the space of authoring her identity with more stories about herself to draw from.

Inbal also described hanging out with boys, in her case she was referring to her social group: "I'm, like, used to it with only being guys. That's why this experience is kind of better for me, because at school I only have guy friends...I think it will be good for me to interact with more girls." Inbal described the social dynamics of high school that led her to find herself more comfortable in the company of "guys". She saw the program as an opportunity to have meaningful interactions with girls and she interpreted the fact that this is a maker-based program as a filter to like-minded girls. Inbal's words, "I think it will be good for me," framed her participation almost as a cure to her current condition or longing to have other kinds of social relationships.

Aya, a 14 years old Native American & Caucasian mixed ethnicity girl from a middle-class family, offered another way of talking about the company of girls in this maker environment. She linked the company of girls and the physical aspect of the work to feeling more comfortable and associating it with a desire to change. Aya told us: "I think it's going to make me a little more confident around people. Sometimes I'm really shy and I think this camp is going to help me just come out of my shell a little." Aya described her interest in arts and crafts and in making costumes and armor of her favorite movie characters. She was also active in theater productions but, despite all her affiliations and activities, she viewed design and building physical artifacts

and using power tools in the company of other girls as an opportunity for inner change, for "building her confidence around people."

A play world as an island for identity work: separating from the community

Holland et al. [25] describe the transformative power of the play world of Tij to women in Nepal. During Tij, women, who have left their community to join their husband's families, return to their home villages. During the Tij festival they perform stories about their lives and speak openly about the oppression that they experience voicing thoughts and feelings that they repress for the rest of the year. In this space of authoring they talk through an alternate view of their world and imagine a different position for themselves in the social order. The festival is seen as a play world as it takes place outside the 'real world' and as such allows this different way of being. Play worlds allow participants to imagine and practice new discourses, new ways of acting, interacting with artifacts, in a freer/looser environment that have the potential to develop into new figured worlds.

For the girls in our study, the program offered a kind of play space where they could try on a new way of being in the world. Some of the girls talked about the program as a separate entity, apart from their everyday lives, their communities and their social network, that allowed them to imagine themselves in new ways. In the following section, we discuss two ways girls described the desire for a separate space.

*A play world for experimentation of being young adult***.** This theme was specific to the interviews with the older girls in the group. Four girls in the program were about to start their senior year in high school. All four of them came from low income families, three of them lived in a large city and one came from a rural town. Two of them, Avishag and Batya, came to the program from out of state. They described the opportunity to participate in the program as part of an adventure and experiment in what it means to leave their community. In these girls' descriptions of the figured world of being a "young adult", we recognized that independence, separation, and making your own path were given significance and value. For example, Avishag, who was debating a possible career in architecture, described the way she imagines her life in this profession: "With architecture I also like it because you can go to different places. I could go to Europe and explore there and work there. I think the culture there is very relaxed and you're smiling and happy. You don't worry about what we worry about here. So, I want to go experience that." Given this desire to venture far from home, the program provided Avishag the opportunity to test out what it was like to be in a new environment with strangers. Her mother emphasized the importance of getting out in the world in her part of Avishag's application, "As a single mom I do not really have time or money to take my kids out as much as I would like to, so this would be a good opportunity for her to see something other than [name of place]."

Other girls also talked about participating in the program as an experiment in taking their own path towards independence and exploring the world. Batya, who came from outside California spoke about her attraction to the state and to a specific design college program, "I'm interested in California…I've been thinking about going here for a long time". She also spoke about expanding her social world, explaining that she wanted to "network…and meet people that I've never met before." All four of the rising seniors expressed their sense of urgency in expanding

their worlds and engaging with new social networks before the end of high school and described it as something they avoided or lacked the opportunity for doing before.

A play world to experiment with a different me. The fact that the program was not part of their school and not in their home town was a drawing factor in most girls' stories. Some of the girls described attending school with the same group of kids since elementary or middle school and perceived their position in these groups was already reified. For example, Yael, a 14-year old African-American girl, described her wish to find new experiences following an injury that prevented her from continuing her extensive involvement in sports, a community of practice in which she was a central member. On coming to the program, she said:

> *I don't know people, and I think that kind of gives you the opportunity to make yourself try new things, and really expand your horizons, because nobody really knows anything about you going in… So, I think it's just kind of going out there, and knowing that these people don't know me. So, whatever I try, it's like, 'Hey, she's out there, and is going to try things' So, I think it's just it's a little bit comforting knowing that you kind of have a fresh start.*

Some girls described the opportunity to be outside their regular circles as an opportunity to behave in new ways. For example, Inbal described her desire to change the way she interacts socially: **"**I like coming to places like this that no one knows you, because no one knows you. You can be someone different. You can act way different than you are…At school, I don't talk to a lot of people. So, when I came here I was like okay I'm going to try talking." We interpret Inbal's story in light of Gilligan [34] study of girls' transition to adolescence that characterized a loss of "voice" in the way girls as they grow up internalize social expectations from them to repress their feelings and adhere to norms of what it means to be "nice".

In this context, the program provided an opportunity to get out of the narrow caging identities in and experience themselves as young woman with other girls and woman with similar interests and goals.

Conclusion

In this study, we presented an analysis driven by our attempt to understand participation in a girls-only maker program that is intentionally designed to disrupt historical, cultural, and social narratives on the relationship among gender, underrepresented communities, and participation in STEM. The program was not part of school or other institutions, and participation required application process. Therefore, the questions we addressed in this report related to the girls' motivations to participate and desires from participation. Using the method of semi-structured interviews at the beginning of the program, we aimed to learn how girls make meaning of their decision to participate in light of the figured worlds they are a part of outside the program. Our analysis is based on our understanding that an act of telling is an act of meaning making - an act of identity construction within the context of the program, using the different voices and cultural tools each girl has for her disposal.

Based on the interviews' emerging themes, we argued that girls saw their participation in the program as an opportunity to experiment with possible desired identities in a way that is not available for them in their daily lives. Using Holland et al.'s [25] framework of figured worlds and space of authoring, we view the girls' participation in the program as an act of authoring in which the participants leave their figured worlds to enter a wispy community in which, with the support of the members of this community, they could begin to "rearrange, reword, rephrase, reorchestrate different voices and, by this process, develop her own 'authorial stance.'" [25], a process that took place already in their decision of which stories to tell and how to tell them.

In our analysis of these stories, we showed several themes that connect the figured worlds that occupy girls' lives to the decision to join the program. One theme focused on participation as an opportunity to examine new ways to compose the interaction between disciplinary and gender identities. Another theme focused on the construction of gender identity through the opportunity to be in a space with like-minded girls. Both these themes reflected upon the girls-only aspect of the space and its emphasis on creating a community of young women that design and build projects together and at the same time explore what this community mean to them. We also learned that some girls felt that, to engage in creating new stories for themselves, they needed the space to be separated from their home and school communities. A specific group were the older girls who also viewed the value of a separate space in serving experimentation of their identities as young adults.

This report is part of a larger study on girls' participation in the program. We believe that this work contributes to the growing body of research on the experiences of girls from underrepresented communities in relation to STEM disciplines. We recognize that our study only looks at girls who self-selected into the program, and as such we do not claim that our findings apply to all girls. However, we do believe that this study demonstrates what some girls from underrepresented communities who are interested in STEM experience, and hope these insights can guide future program designers. Our findings also contribute to inquiry on the value of girls-only spaces and the circumstances and design in which such spaces could be of benefit for girl.

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