

# Whose Design Matters?

Co-designing making activities with and for hyper-marginalized families

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## ABSTRACT

Making-for-All narratives permeate discourses in education and policy without considering the challenges to implementing programming equitably for all. This paper describes a nascent research collaborative that aims to partner with incarcerated women to design making experiences that support inter-generational STEM learning-through-making. We describe our initial fieldwork in prison, including discussions with incarcerated women regarding their own STEM identities and conceptions of their children's learning. This work informs our larger effort to explore critical making and expansive learning that problematizes assumed parental roles, normative families, and the right to agency in design and decision making.

## CCS CONCEPTS

• Social and professional topics → Professional topics → Computing education → Informal education

## KEYWORDS

Critical Making, Tinkering, Incarcerated Women and Families, Research-Practice Partnerships, Informal Education

## 1 Introduction

The 2019 FabLearn conference theme relating Maker Education to social and environmental challenges could not be more prescient given the barrage of reminders of the precarious world in which we live. From the recent UN Climate report suggesting we have a little over twelve years to reverse the course of anthropogenic climate change [14] to the growing wealth inequality gap that continues to threaten democratic participation globally [24], it is evident that creative solutions are necessary to solve these complex problems and we need to disrupt and challenge the status quo that has enabled our current state of affairs. It is our view that the Maker Movement embodies the dispositions towards imagination, creativity, and possibility necessary to confront and rectify the problems that we currently face, and to do so we must enlist *all*, including the most

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marginalized in our pursuit of how making and maker education can meet these demands.

At the heart of making is imagination and the rethinking of what is possible for our futures. This way of thinking has been present in learning for some time. Vygotsky argued that imagination is vital to creating our world and we are creatures both capable and oriented towards constructing our future:

If human activity were limited to reproduction of the old, then the human being would be a creature oriented only to the past and would only be able to adapt to the future to the extent that it reproduced the past. It is precisely human creative activity that makes the human being a creature oriented toward the future, creating the future and thus altering his own present [23].

Research in making has shown the potential to support community change and democratize access to invention and production [3, 6]. While equity-oriented scholars are using making to support new equitable ways of being for communities [7], more work is needed to empower all learners and disrupt the reproduction of dominant cultural practices such as the Silicon Valley technology culture that maker spacers often emulate [8,5]. Our challenge as educators, then, is to include those not traditionally associated with the maker movement and learn together best how to support others in this endeavor.

In this paper, we describe our initial efforts towards developing an initiative to not only broaden participation in the maker movement but also create a generative space that democratizes knowledge production for some of the most marginalized members of our communities – those incarcerated and their families. The STEM Ecologies of Learning for Families (SELF) project is bringing making activities to a minimum-security women's prison to support learning opportunities for both incarcerated women and their children. We are drawing on principles from participatory design research [2] to acknowledge the expertise of incarcerated women as both mothers and makers and are eliciting ways to document this expertise.

## 1.1 Family Learning and Making

Designers of informal making activities are increasingly leveraging the relationships within families to support learning in these spaces [19, 4]. Learning within families and intergenerational learning has been a routine topic of research in informal STEM learning from environmental education to computing and technology just to name a few examples [25, 22]. Although more research in making and maker spaces is attending to the needs of families from historically marginalized communities [18, 21], and how we can expand social networks for youth and adults through co-making [9], little is known about how best to support learning for hyper-vulnerable families in these spaces and activities. This research is filling this gap.

Research recognizes the importance income plays in the types of dispositions families develop towards learning with technology [13]. There is also growing recognition that designs for learning should

include the ability for parent roles to be flexible rather than rigid [19]. However, just as we want to be mindful to not attribute a deficit perspective to lower-income families or parents who lack the technical knowledge or expertise of their children, we also cannot make assumptions that incarcerated women and their families have shared cultural practices or demography. We take a strong antideficit perspective across all levels: individuals are not defined by their trauma such as incarceration, all communities have practices that align with principles found in making activities, and families have funds of knowledge that are assets to be used in creating expansive forms of disciplinary learning [15]. We are extending anti-deficit thinking that is often invoked when discussing children from underrepresented and minoritized communities and recognizing that the same thinking should be applied to all hypermarginalized people, including adults.

## 2 Research Background and Context

The Saint Louis University (SLU) Prison Program began in 2008 as part of the university's mission to serve the local community and greater humanity by extending the university offerings to state and federal prisons in Missouri and Illinois. The SLU Prison Program offers a variety of programming including an associate's degree for both incarcerated individuals and correctional center staff, college preparatory programming, and the "prison arts and education" program. The arts and education program offers intellectually stimulating educational experiences for incarcerated people, prison staff and community members that foster human connection, and resources for positive self-expression and personal growth. This program has been primarily arts and humanities focused, but in response to a growing request by both incarcerated individuals and program staff, the SLU Prison Program is developing more STEM offerings and has begun to incorporate lectures on STEM as part of its "Inside Out Speaker Series." The "Inside Out Speaker Series" are informal lectures and workshops that last 90 to 120 minutes and are open to all people at the facilities, both inmates and the staff.

The SELF project is building on the speaker series by helping to solicit STEM experts to the speaker series and then conduct making and tinkering workshops connected to the lecture with women in the Federal Correctional Institution Minimum Security Camp in Greenville, Illinois. The making and tinkering workshops will be structured to invite incarcerated women to be co-designers and coresearchers of a family making event held during a family visitation day, such as World Children's Day, when a greater number of children visit their incarcerated parent. Our goal is to develop making and tinkering activities, with suggestions for interaction and guidance that support intergenerational learning through making for hyper-vulnerable and hyper-marginalized communities. Our work is in its early stages of planning and implementation. In this paper, we are reporting on our founding methodology and initial fieldwork of the Speaker Series to highlight the potential and limits to conducting co-research on learning through making with incarcerated mothers.

## 3 Methodology

Our project represents an ecology of research. As researchers, we are aware that dominant forms of research often reproduce power-laden relationships between the researcher and "the researched" that need to be interrogated for whom – and with what consequences – the knowledge gained from research is generated [10]. Therefore, we draw on principles from participatory design research to acknowledge the

expertise of our participants including incarcerated women, STEM professionals, and the researchers. In addition to codesigning the making activities, our participants will be helping to construct and analyze the research data.

We believe the most appropriate way to research how hyper-vulnerable populations are learning is to embrace an anti-deficit approach to research. We are engaging in *Social Design Experimentation* (SDE). SDE expands on the collaborative approaches to research found in traditional design-based research to recognize how participants are "designers of their own futures" [12]. SDE is humanist and equity oriented in which researchers are designing *with* rather than *for*. This calls for building relationships that value human agency over intervention [9]. Particularly for vulnerable populations, we believe the relationships should be built on care and dignity, and are consciousness raising for both researchers and participants [17]. Enlisting incarcerated women as co-researchers is not new [11]; however, leveraging the expertise of incarcerated women as makers and mothers is. We will use SDE as our primary method because it recognizes the learning happens in complex ecologies and also enables democratizing forms of inquiry. An intended outcome is that participants are empowered to organize new futures for themselves and their communities - or in this case families.

## 4 Early Data and Findings

Our research project is in its nascent stages. As a research team, we came together in 2017 to develop a research practice partnership around making in the women's prison. As we explore avenues to further support our work, we are building on the already established infrastructure of the SLU Prison Program Speaker Series. Members of our research team are visiting the Greenville Correctional Facility during speaker series events and taking note of the conditions under which this work will occur. The first event attended was a lecture given by the Haitian-American author Edwige Danticat, whose family memoir, *Brother, I'm Dying* was read by both female and male inmates as part of the National Endowment of the Arts "Great American Read". The authors travelled with Ms. Danticat and several faculty of the prison program in the spring of 2018 to the prisons, observed her lectures to both the women and men's facilities, and then engaged in conversation with her and the faculty about their experience. The second event occurred in the fall of

2018 when the first author

presented her work as an invited speaker for the speaker series on learning sciences research. The following vignette presents our early field work as an ethnographic case study [20] of the context for doing this work.

*The men's side of the Greenville Federal Correctional Institution sits behind barbed wire fencing with a guard tower watching from above, the adjacent women's facility is called the "camp" and has the look and feel of a community college. Passing through the metal detector feels no different than entering any government building; it is less invasive than your standard TSA screening at the airport. We pass from the main building through a grassy, green courtyard, where women are training service dogs. I inquire about the program and the guard escorting me tells me the prison- service-dog program has been a great success as "many of the women in the program have never known responsibility." We head to the multi-purpose recreation facility to hear a talk by Edwige Danticat.*

*Ms. Danticat talks about her experience as a mother and what stories of her family she would like to pass on to her daughter. After Ms. Danticat's evocative talk about her experience as the daughter of Haitian immigrants, the women ask her poignant questions about her past as well as practical questions such as how to become a published author. The women are attentive and engaged; Ms. Danticat is more than obliging.*

*We travel next door to the men's side of the facility. One of the inmates cheerily shakes the hand of a SLU Prison Program Faculty. They clearly know each other intimately (most liking having known each other for some time) but have to be restrained in their interaction. As men file in, the guards direct them where to sit. I notice when an African-American man is tapped on the shoulder to remove his stocking cap, while sitting right next to him, a man wearing a Muslim kufi made of the same material is ignored. Ms. Danticat shares a different part from her memoir. This time she focuses more on her father and uncle who were political refugees from Haiti. While her father was successful in his pursuit to come to the United States, her uncle died in US immigration custody chained to a hospital bed. It is difficult for me not to think about the current US administration's hard stance on immigration.*

*When her talk is over, she fields questions by the men. A stocky man, with a shaved head and tattoos often associated with white supremacist groups raised his hand. He begins by saying, "Thank you for sharing your story of your uncle, I too know what it is like to be chained to your bed in a hospital. I wanted to comment on your father's unwavering faith and I can't wait to meet him in heaven." Upon hearing this, Ms. Danticat's eyes tear, she thanks the man, agrees with his sentiment that her father was a man of faith, and confesses that her tears are because her own faith wavered.*

*On the car ride back to SLU from the prison, I ask the faculty member about the man who shook her hand. She tells me his name, and then says, "he's a lifer." I did not ask if the faculty member knew of his crime, but I shared with her and the others that I found myself wanting to know the transgressions of the incarcerated men and women. Those who had taught in the prison before told me this feeling is assuaged over time, with one regular instructors reminding me, "You would never begin one of your regular university classes by asking your students to share with the class their most embarrassing or shameful moment. Why would this be any different?"*

*I ask Ms. Danticat why she agreed to give this talk and participate in the program. She tells me that she used to participate in similar programs in Florida. The Florida prisons she worked were deep in the Everglades and an inmate once told her, "here we are the ones behind fences, with the animals looking in on us; how do we not turn into animals ourselves."*

*Six months later I returned to give my own lecture in the prison. During this time, I had given presentations on the project at conferences and ruminated on my experiences, I do not have the success and stature of Ms. Danticat, but I let her words stay with me when I greeted the women to give my own talk. I vowed to see their humanity when I spoke to them, with no assumptions about who they were, or whom they could become.*

*About 30 women came to hear my talk that I had titled, "The Science of Learning." I was in the same multi-purpose gymnasium as Ms. Danticat, but rather than stand before them, I sat in front of them and talked about different theories of learning. I tried my best*

*to engage in conversation that reserved judgment. Some women expressed that they attended because they wanted to hear more about science and that they have so little opportunities to engage in science practices. Others asked me about what educational practices are best for their children. Are smartphones and tablets "good" for kids? What should they do to help their children succeed? One woman shared that her four children were all so different in how they learned and that while mainstream education worked for three of them, the other was better served through an online program. Many asked about their education pathways: should I go to community college or a university?*

*Having seen the prior talk, I was prepared intellectually to address these practical questions, however, the questions that captured their liminality of who they once were and who they could become gave me pause. These are the questions that are not mine to answer. For example, one woman told me she was an early childhood educator before her sentence, "I'll never be able to do that again as a felon, will I?" The Prison Program Staff attending with me that day, told her no, probably not, and we both reminded her that there would be other ways she could engage with children; for example, she could create a community group of families with her same circumstances. How and what she will choose is her choice not ours, but it is likely that her path will be filled with significant obstacles.*

## 5 Discussion

As we reflect on our early fieldwork, we are confronted with two possible dispositions toward this work: pessimism or optimism. Regarding the former, there is much to leave you feeling defeated. Although our data is preliminary, it appears that prison might magnify social challenges of the outside world rather than mute them. These challenges include: race and class bias; inaccessibility to healthcare, in particular mental health care; and a persistent dehumanization of the "other".

Racial bias was perpetuated by the prison guard evidenced by allowing particular headwear but not others. It has been argued that our current penal system is the most recent manifestation of longinstitutionalized racism that targets African-American men specifically and increasing African-American women [1]. Racial injustice cannot be decoupled from the classist systems that help to produce it. Bias results in an "us-versus-them" mentality and you hear this in the discourse of prison staff: "they've never known responsibility." We as researchers and interlopers in this context feel powerless to disrupt the institutional hierarchy and order and recognize its necessity for our safety; however, we do not wish to add to this injustice.

A similar feeling of impotence arises when you know that the majority (90%) of incarcerated women nationally, have had a drug or alcohol problem [16]. The numbers at Greenville are likely to be higher given it is one of the few federal facilities that offers drug rehabilitation services and women specifically ask to serve their sentences there for this reason. Substance abuse and mental health problem are often treated as criminal in our country, particularly for those who cannot afford private treatment and healthcare. It is hard not to be angry that if we had better social supports for those struggling with addiction or poverty, much of our criminal justice system would be dismantled.

While we are observing the local constraints and challenges of creating equitable practices in one prison, a national conversation of criminality regarding who has the right to be considered - not just a citizen - but a human being is underway. If the inmates that Ms. Danticat used to work with worried about turning into animals, how do people feel now with a current president referring to “illegal” immigrants as: “These aren’t people. These are animals” [21]? Witnessing the shared moment of connection between a student, who happens to be incarcerated, and teacher evokes a response that recognizes the inherent humanity of all people, including the “lifers”.

This is when we are reminded that our work is about making and creating the future we hope to see. We can either succumb to the weight of the challenges described above or embrace optimism and try to show how the world could be otherwise. We believe the maker movement entails hope and possibility. The incarcerated women (and men) who attended the speaker series chose to attend. They expressed excitement to learn about making and STEM, to continue to support their children’s learning, and to imagine how they could design their own and their children’s futures. It may not be easy and their lives may not look like they did prior to their conviction (e.g., they might not return to their previous careers), but the women know they have a choice in what is next. It is our task as co-researchers to support and respect their agency of choice.

Thus far, we have identified challenges already present prior to engaging in any design work with the women; we know that there will be more: both when we instigate coresearch and then when we expand the work with their children. However, these challenges are our challenges as researchers and designers for this learning opportunity. If we do not pursue this work as a community of makers, than we cannot claim to truly believe in “making-for-all”.

## 6 Conclusion

Returning to this year’s conference theme, as designers and educators we could lament the past that created the current state of affairs, much like the incarcerated individuals we work with could dwell in their own mistakes, or we can re-commit to the founding principles that inspired the maker movement: imagination, creativity, and possibility. The road ahead of for all us, including the environment, is not without its challenges, but we should not capitulate to fear. We need to decide how we want the future to be and make it happen. The choice before us now is whose design matters? Do we paternalize and determine outcomes for those we do not understand? Or do we respect and honor the agency of all?

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