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 Topic Description & Research Methodology
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What are makerspace facilitation strategies that utilize a critical pedagogical framework, and which are successful in informal museum settings with short-term visitors?

Criteria of Success:

- ☐ Content-driven affinity space is created
- ☐ Promotes accessibility to complex or controversial social issues
- ☐ Promotes reflection of self and personal experiences
- ☐ Visitor projects are arranged through passion-based learning
- ☐ Fluency of tools and materials are gained
- ☐ Constructivism occurs: visitors construct knowledge around a social issue through dialogue with facilitator or other visitor(s)
- ☐ Conversations enhance visitor's critical motivation and desire for change
- ☐ Constructionism occurs: learning by constructing a meaningful product
- ☐ The product responds to a social issue and ultimately enacts change in society

Research Question

For my thesis exhibition, I am synthesizing makerspace facilitation strategies with ideas of critical pedagogy to produce informal museum programs that critically investigate social issues through making. These strategies involve asking questions around identity and social issues, which promote reflection and conversations amongst learners that ultimately lead to making. Based on interviews and research of other spaces, institutions and facilitators, success of a program can be measured by various outcomes (see above *Criteria of Success*). Realistically, all aspects of the criteria may be impossible to achieve within an informal museum setting with short-term visitors, however, each criterion is one step closer to providing a successful social action museum makerspace.

The first criterion is that a content-driven affinity space is created. Rather than focusing on learning a tool or technology, the tool aids in investigating content, which in this case is a social issue. Furthermore, an affinity space is a place where informal learning takes place around a common interest, and skills transcend individual differences. Often peer teaching takes place in an affinity space (Lahana, 2018, pp. 2). The second criterion is that the program promotes accessibility to complex or controversial social issues. This means that the space provided should feel safe, and issues are made accessible through questions, prompts, conversations, and making (CUP, 2018). The third criterion is that the program should promote reflection of self and personal experiences. It is important to acknowledge one's own experiences as relevant, and contextualize one's position and privileges in relation to the social issue before investigating further. The fourth criterion states visitor projects are arranged through passion-based learning (Lahana, 2018, pp. 7). This means that the program should always follow the lead of the maker regarding their passion towards an issue, and if possible, the tools that are used. This relates to the fifth criterion, gaining fluency of tools and materials, because visitors can choose which tools are appropriate for their project. Traditional makerspace philosophies teach around STEAM-based tools and materials. Increasing fluency of these tools and materials is crucial for success in any makerspace (CMP, 2014). The sixth criterion highlights constructivism, an educational epistemology where learners converse using previously established mental constructs, and with the help of a facilitator, build knowledge (Hinchey, 2010, pp. 40-41). These conversations should increase their motivation to question an issue, criticize it, and enact change regarding their issue. Critical motivation and desire to enact change pertain to the seventh criterion. The last criterion references constructionism, a psychological concept that extends the idea of constructivism by

adding manipulative materials to learn through making a meaningful product (Lahana, 2016, pp. 6-7).

Researcher Background

I have learned traditional classroom-based art education instruction through my B.S. in Art undergraduate program that led to an initial K-12 visual arts certification. In addition, this thesis project culminates my M.A. in Teaching Art/Professional Certification at NYU. Both of these degrees have shaped my understanding of art education theory and curriculum design. In addition, I was first introduced to makerspace philosophies at the Makeshop, located in the Children's Museum of Pittsburgh. As an arts and making educator I learned a plethora of makerspace programs, and investigated teaching techniques based on their Principles of Practice. This past year I have continued to work in museum education as the coordinator of public programs at The Children's Museum of Manhattan. This position has allowed me to design museum interactions, plan public programs, and oversee educator facilitation with short-term museum visitors. In tandem with my experiences as a public programs coordinator this year is my current NYU program, which heavily focuses on contemporary art, social justice issues and critical pedagogy. This program has been an inspiration to myself as an educator, artist and human being. Because of my background in art education, professional experience in museum education, and current program that focuses on social justice through art, I am primarily interested in makerspace ideologies, and wish to use my knowledge of informal education to enhance experiences of makerspace facilitation by adding a critical lens.

Makerspace Ideology

In makerspace education, facilitators use inquiry-based learning approaches to engage the learner in making activities. The facilitator will often ask the learner which materials they would like to investigate, if they have a vision, and what tools might aid in their creation. Makerspaces provide an exploration of materials, both commonplace and unfamiliar, and promote experimentation with processes and tools to increase fluency of the tools and materials. Tinkering, the process of purposeful play and testing, is also a highlight in makerspace education (CMP, 2014). In addition, makerspaces use methods of choice-based art education to provide agency and empowerment to learners. The prompts of makerspace activities or programs are open-ended, and allow the learners to dictate their final product. Through this inquiry-based learning, learners can discuss topics together, and with the instructor, to build knowledge. Building knowledge around specific ideas through conversation is a method of constructivist epistemology. Furthermore, makerspace projects may be functional or non-functional. The project can have an intended aesthetic or the intention may be that the form follows the function. Makerspaces seek to promote consistent reflection and revision of design to create something with intention. In this environment, learners develop fluency of the materials and tools while making. Ultimately, making reorients traditional classroom roles and looks to students as the experts.

Some makerspaces highlight technology as the primary learning component, however, if staying true to STEAM-based principles, programs can vary from digital domains and circuitry, to physical technology, sculpture, fiber arts, functional art and beyond. In contrast with traditional art education practices, technology and new media is automatically included. Common programs in children's makerspaces revolving around technology and new media include Scratch programming, Arduino, Makey Makey and Hummingbird electronic kits, stop

motion animation, green screens, photography and video, circuit connector kits, and Tinkercad 3D digital design. Other programs that utilize art materials include recycled sculpture, fiber art techniques like weaving, sewing and embroidery, book binding or zine making, leather embossing, and jewelry.

Critical Pedagogy

Critical pedagogy is a highlight to this NYU program and is a framework of education that involves deconstructing social issues. Paulo Freire is one of the founding fathers of critical pedagogy. He believes that “the oppressed, as divided unauthentic beings, [should] participate in developing the pedagogy of their liberation (Freire, 1972, pp. 48).” This is a foundational principle of critical pedagogy, and art as social change. It is important that those creating art or making should possess the agency to change the world around them, based on their lived experiences of oppression. There have been many advancements to this ideology since Freire wrote it in 1972, however, critical pedagogy is grounded in the effort to provide justice for oppressed cultures and help those who hold less power to reimagine power structures in order to assert their own narratives, experiences and agency to transform the systems that oppress them. The major tenets of critical pedagogy are as follows: Learning should be grounded in lived experience, the projects should be culturally and socially responsive, curriculum should name social structures that promote social injustice, inequality, and hegemony, projects should be humanizing, the experience should be dialogic as well as collaborative, problem-posing, process-oriented, and should orient your students as activists and visionaries (Hamlin, 2017).

This project is also heavily influenced by Dr. Lewis Lahana, a makerspace “Techbrarian” in the Lower East Side of Manhattan, and his research he published on his social action

makerspace in PS 188 (The Island School). He uses a critical pedagogical framework in his makespace where his underprivileged students explore “the ways in which dominant cultures oppress others socially, politically, and economically,” and works with them to create solutions to these social issues through the tools and materials in his makerspace (Lahana, 2016 pp. 3). Considering 47% of his middle school students are referred to as homeless, he primarily studies the experiences of low socioeconomic students and their interaction with a social action makerspace that is heavily tied to advancing their community (Lahana, 2018, pp. 2). Although his makerspace fulfills the task of connecting social issues and makerspaces, he has one significant contrasting characteristic: His students frequent his space 2-5 times a week, and are able to produce thorough investigations of their topic and spend large amounts of time on producing their work.

I am also looking to Center for Urban Pedagogy as a model for investigating social issues. CUP is a nonprofit organization that creates programs designed to investigate complex policy and planning issues in communities. This organization claims to take on “complex issues...and break them down into simple, accessible, visual explanations.” The online documentation of their programs provides insight to facilitation strategies and possible media. My hope for this project is to make social issues more accessible, which CUP does (CUP, 2018).

Socially Engaged Art

Social issues are prominent in contemporary art works, and are also deconstructed in socially engaged artworks. Socially engaged artists, or social practice artists, often invite audiences not normally involved in art to participate. This is similar to visitors of museum makerspaces in that they may have no prior experience with the materials or tools. Furthermore,

these artists work across a variety of audiences and public landscapes to collect their research and reactions. In this way, I am inspired by socially engaged artists as well as social movements that work to provide awareness and create change (Frasz, 2017).

Based on my personal experiences and teaching, it is tough to expose learners to controversial ideas that may stem from social or political turmoil in society. Activists and social practice artists are working to diminish the gap between social issues and the public audience. As an educator, I feel it is important to facilitate programs that provide accessibility to complex or controversial social issues. Most of us already experience these issues, we just don't know exactly how to talk about them.

This project specifically target social issues, and uses identity as a segue into personal reflection and position within the power structures in society. Through reflection, conversations, and making, learners should consider why the current power structures exist around their social issue and how people talk about them. Learners can also visit a [link](#) to my website to be inspired by social practice artists.

Works Cited

- Center For Urban Pedagogy (CUP). (2018). Retrieved from <http://welcometocup.org>.
- Children's Museum of Pittsburgh (CMP). (2014). *Makeshop Blog*. Retrieved from <http://makeshoppgh.com>
- Frasz, A., Sidford, H. (2017). Mapping the Landscape of Socially Engaged Artistic Practice. Retrieved from http://artmakingchange.org/wp-content/uploads/2017/09/Mapping_the_Landscape_of_Socially_Engaged_Artistic_Practice_Sept2017.pdf
- Freire, Paulo (1972). *Pedagogy of the oppressed*. New York: Herder and Herder.
- Hamlin, Jessica (2017). Critical Pedagogy- Current Issues F17. NYU Steam. https://stream.nyu.edu/media/Critical+Pedagogy+-+Current+Issues+F17/1_0goehugu
- Hinchey, Patricia H. (2010). *Counterpoints*. Vol. 24, Finding Freedom in the Classroom: a Practical Introduction to Critical Theory.
- Lahana, Lewis (xxxx) 'Positioning educational makerspaces within schools serving low socioeconomic status students', *Int. J Innovation in Education*.
- Lahana, Lewis (2016). *The Tech Cafe, A Social Action Makerspace: Middle School Students As Change Agents*. Teachers College, Columbia University.