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Research in Art + Education

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## Making for Change

### Introduction

My research question during this thesis projects is as follows: What are makerspace facilitation strategies that utilize a critical pedagogical framework, and which are successful in informal museum settings with short-term visitors? I chose to synthesize makerspace facilitation strategies with ideas of critical pedagogy to produce informal museum activities 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. This topic is significant to me because of my background as an Arts and Making Educator in a makerspace at the Children's Museum of Pittsburgh, and my current position as the Coordinator of Public Programs at the Children's Museum of Manhattan (CMOM). Recently, myself and our public programs department at CMOM spearheaded the design, execution and function of the new exhibit *Art, Artists & You*, which was inspired by makerspaces and contemporary artists. Designing programs and leading professional development trainings for the educators in the space encouraged me to think more about how makerspaces can relate to and live in tandem with contemporary art in this day in age. Many contemporary artists are creating works in relation to social issues, especially social practice artists. Many of their works are interactive with their audience. I was also curious how makerspace philosophies could relate to and live in tandem with the current ideas of art

education. Makerspaces are developing in schools, and often directed by an art or technology teacher.

## Context

My research question naturally formed over time because of my direct experience in makerspaces in conjunction with the core tenets of our program- contemporary art, critical pedagogy, and social activism. Many of the artists and activists we look at in class fall under these three categories. Before entering this program, I saw a traditional Discipline-Based Art Education classroom in practice, where teachers will instruct techniques of studio practices, including drawing, painting, and ceramics, usually in relation to a highly notable artist from history. The student projects are often pushed to a certain aesthetic standard, resulting in replicas of the teacher example, inspired by the fine artist. Through my undergraduate art education program, I have seen that art education in the United States has attempted to evolve from Disciplinary-Based Art Education by using “big ideas” as starting points for projects, as well as methods of Choice-Based Art Education. The most radical efforts I have witnessed to these two teaching philosophies have been through tenets of critical pedagogy, and in makerspaces.

In makerspace education, choice is a huge part of the learning process. 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, Makeshop). In traditional art classrooms, students might be given a choice of color, or type of paper or drawing utensil within the assigned

project. In makerspaces, learners decide their avenue of learning by choosing which materials and tools to investigate, which could be different from other learners in the space.

The attempt to induce “big ideas” into art education is a lackluster attempt to push students to be critical of their world. Big ideas are themes that drive your lesson plan, lesson sequence, or even curriculum. These ideas can be a focus, an essential question, a conceptual understanding, or a broad, important human issue or concern. Some themes could be perceptions of time, age, and decision-making just to name a few (Stratten, 2014). Using big ideas as a theme for your curriculum is a step toward being critical, however, it falls short of critical pedagogy, which is meant to deconstruct social issues and power structures in society. 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, and the experience should be dialogic as well as collaborative, problem-posing, process-oriented, and should orient your students as activists and visionaries (Hamlin, 2017). Our current political climate and constant need for critical thinking in our society makes these tenets all the more vital in art education.

Critical pedagogy and makerspace education are the two most promising teaching approaches I have witnessed as an educator and student. The investigation I produced through my thesis project was an attempt to bridge the gap between these two teaching models. Makerspaces are relatively new, stemming from Maker Faires which began in 2006. This is known as the Maker Movement. Makerspaces have also become trendy in schools within the past 10 years. Ultimately, I am interested in how the Maker Movement can further help us be mindful and active citizens through art education.

Before this project, I had not personally experienced a space with the same ideals I was gearing my research toward, however, I knew that the Center for Urban Pedagogy (CUP) produced programs that embodies elements of critical pedagogy. 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” (CUP, 2018). Their website was a great resource for my project because it provided project examples from their programs, which give insight to facilitation strategies and possible media. Their organization attempts to make social issues more accessible, which was a goal of mine through this project. I hoped to interview a representative from CUP for this project, however, I was not given a response.

Another resource tied to critical pedagogy that I used as references for my project is Paulo Freire's *Pedagogy of the Oppressed*. As one of the founding fathers of critical pedagogy, it is important to reference his philosophies. He believes that “the oppressed, as divided unauthentic beings, [should] participate in developing the pedagogy of their liberation” (Freire, 1972, p. 48). This is a foundational principle of critical pedagogy, and also a core principles to our NYU program. 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. Based on Freire’s philosophy, it is important to me that those creating art should possess the agency to change the world around them, based on their lived experiences. This resource was important when starting the project in that it reminded me of the backbone philosophy that is critical pedagogy.

As a part of this project, it was important for me to research makerspaces, even if they weren't facilitating through ideas of critical pedagogy. The Children's Museum of Pittsburgh does a great job documenting their programs through their blog, which also provides extensive information about the research completed by Carnegie Mellon University's Entertainment Technology Center and the University of Pittsburgh Center for Learning in Out-of-School Environments that went into creating this space. It shares their Principles of Practice, the tenets this research produced. The Principles of Practice are Inquire, Tinker, Seek & Share Resources, Hack & Repurpose, Express Intention, Develop Fluency, and Simplify to Complexify (CMP, 2014, Making). Considering I was a facilitator in this space, I saw these tenets enacted first-hand. I desired to see how makerspaces in New York City were functioning, therefore I reached out to the New York Hall of Science. Ironically, the Children's Museum of Pittsburgh and the New York Hall of Science conducted a research initiative together to "determine how to best support family engagement in making as a learning process. Through this work, the research-practice teams at each museum have empirically identified the kinds of learning that [they] value with respect to making" (CMP, 2014, Making). I learned more about the New York Hall of Science through a visit to their makerspace and an interview with the Director of Maker Programs. These experiences increased my knowledge of makerspace facilitation strategies in New York, and influenced my project approach.

I wanted to look at specific projects that involved similar ideals. I looked at Ghana Think Tank's "What's Your Problem?" (2015). This project is meant to encourage communication between the U.S.-Mexico border due to conflicting views of immigration. I was intrigued by their simple set of instructions to speak with a person who "could never understand your perspective," and use their advice (Ghana Think Tank, 2015). This related to my initiative to

start conversations in an informal museum setting between people who may have different backgrounds, in order for them to collaboratively construct knowledge and ultimately “make.” I also looked at Red 76’s “If We Had a Hammer” project, which is a large scale building project. Here, museum visitors encountered scrap wood, hammers, drills and saws for their use, and everyone was welcome to build. In my mind, Red 76’s project is a collaborative large scale maker project considering it was an improvised construction of schoolhouses. The visitors were given tools and expected to create. I was intrigued by the open-endedness of the project, the introduction to common and unfamiliar materials and tools, and the collaborative work it took to build towards a common goal.

I wanted to look to social practice artists and institutions for information on creating around social issues since so many of them do. I looked at Nato Thompson’s “Working Guide to the Landscape of Arts for Change.” This article discusses artists, projects, and institutions committed to social justice through contemporary art. The most relevant information comes from the section on strategic art that uses culturally engaged radical pedagogy. It gives information on Center for Urban Pedagogy and their project with Candy Chang called “Street Vendor Project,” which is one example of culturally engaged radical pedagogy that connects to the idea of making around social issues. This article also discusses non-profit organizations that specialize in local community development for the arts. It claims that “education programs at museums are often the backdoor for radical pedagogy...education directors, who see these diverse visitors first-hand, are best prepared to grasp the complexity inherent in linking the creative resources of the museum to political social goals” (Thompson, 2017, p. 7). This text is contrary to the museum in which I currently work. I know that many museums use this radical pedagogy as a method for programs and the art they show. I am still curious what these departments look like and how they

function in relation to this radical pedagogical approach. Lastly, the handbook “Mapping the Landscape of Socially Engaged Artistic Practice” gives research on activism and social practice art. Under “findings” the author defines socially engaged art and provides nine variations in practice including spectrums of place, issue, duration, aesthetics, and role and origin of artist. Referencing these findings was helpful in considering the variations that artists work. It also gave me a starting point to thinking about how the exhibition could function on these scales. I decided I wanted my exhibition to have more social aesthetics, and my voice would be that of a facilitator rather than the creative agent. I wanted to focus on the process of the work in that I highlighted conversation rather than the end piece itself. I wanted the work to be focused inward to the small community that gathered around each table, and I knew that the duration would be short term.

Dr. Lewis Lahana is a scholar from Teacher’s College of Columbia University who writes about social action makerspaces. He teaches at PS188 The Island School, which is a community school in the Lower East Side. His dissertation, “The Tech Cafe, A Social Action Makerspace: Middle School Students As Change Agents” (2016), provides extensive content around makerspace philosophies grounded in social issues and social action. This resource sparked my interest because of the recognizable pedagogical practices and maker activities. I wanted to further investigate his space. His website he called “The Tech Cafe” provided me with a plethora of resources he curated for the students around social issues, as well as projects his students created. These resources highly influenced my project, as well as my visit and interview with Dr. Lahana.

Methodology

I interviewed various professionals, facilitators and students to give myself a well-rounded perspective. My initial interaction with Dr. Lahana was over Google Hangouts. I wanted to know more about his approaches to teaching in a social action makerspace. He highlighted the fact that his space is completely content-driven. Rather than using tools and materials to drive making activities, the social issues do. He calls himself a “techbrarian” because he curates resources on his website for students to explore when first beginning a project. Students are guided by prompts or questions on his site, and taken to videos and websites that provide information around social issues. He believes that reading is a barrier to learn for some of his students, and his website provides accessible resources. When a student finds a social issue he or she is passionate about, they then are prompted to respond to this idea through making. He uses technology-oriented tools the most, which include coding, games, 3D printing, robotics, stop motion, video and sound. Students also do metalwork, ceramics, printing on t-shirts, or anything they come up with. Dr. Lahana doesn’t possess knowledge towards all activities that his students explore, therefore he looks to them to become experts through videos, and provides outside personnel to come in to teach. After interviewing Dr. Lahana and transcribing this conversation, I visited his space in the Lower East Side to see his students in action. He begins his classes with a short introduction where he may show a video or present a work a particular student is creating. This inspires other students to work. He may have difficulty getting all students active in his class, but he caters to individual needs by relating to their interests. The students’ only assignment all year is to create a socially responsive piece. He claims some take a week and some may take 5 months. Overall, even if they show active progress he considers this acceptable. I believe that his space influenced my exhibition the most due to his content-driven philosophy. In the exhibition, my questions for visitors helped learners engage in content before making. Dr.

Lahana also introduced me to the idea of Constructionism, which is 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). This is similar to Constructivist Epistemology, knowledge construction through inquiry-based learning, but instead you are making to learn (Hinchey, 2010).

I conducted informal interviews with the students of PS188 during my visit. I was able to record some of these interactions. The students that I interviewed were all clearly invested in their project. Some were more interested in the tool, while others were more inspired by their social issue. However, all students were very knowledgeable about the issue they were investigating. One student in particular wrote a spoken word piece over music to describe family abuse. It was very moving. Another student created a video game using Roblox where the character interacts with people labeled with stereotypes. One student created a wood tree with embossed metal leaves created through foldforming. The leaves still on the tree were positive words while leaves falling off were hurtful words from bullies. These are just a few of the many inspiring projects.

I interviewed two art and education facilitators as well for this project. Danaleah Schoenfuss is a tour guide and classroom teacher at the American Museum of Natural History. Her perspective was worthwhile because a lot of the programs she conducts has to do with social issues and systems of oppression in relation to history. She feels that students are more inclined to ask questions when the material impacts them on a daily basis. She is a strong advocate for teaching about social issues in educational settings, and feels it is one of the most difficult practices of teaching. I also interviewed an art educator who grew up in New Jersey and went to school and teaches in the midwest. Her interview was not as useful as I thought it would be,

however, she provided a perspective of art education outside of New York City, which gave me context. She believes that it is important to include contemporary artists in classes.

I interviewed Sonali Sridhar, one of the founders of the Recurse Center. The Recurse Center is an independent institution that holds retreats for computer programmers. The retreat is a self-directed environment for programmers of all levels. This institution is for all ages, but requires a project proposal to be approved. The institution has elements of a makerspace, including choice-based learning and technology, however, this interview was not as beneficial to my project as I had hoped.

I also interviewed David Wells, the Director of Maker Programs at the New York Hall of Science. His interview was extremely beneficial in helping me understand a thorough approach to makerspace programming. His team highly values tool exploration. They just finished a series called “50 tools” where each day was dedicated to learning a new tool. Ironically, they are pulling back from content-driven programs. However, by content they mean scientific content. They want to be able to adjust their practice to the content that students are learning in school, therefore they believe tool exploration can accompany specific K-12 curriculum. This is very different from PS188’s social action makerspace that is solely content-driven. I believe that both approaches are very important, which made me even more interested in synthesizing makerspace philosophy with approaches to critical pedagogy.

I transcribed all interviews in order to internalize the important information. Parts of the interviews I filmed were added to my video documentary, where I showcased makerspaces located at the Children’s Museum of Manhattan, PS188, and the New York Hall of Science. Creating this video forced me to pick the most important quotes in relation to my project, and I am satisfied with the result.

Another method of research was my own artmaking. I created a woven textile using the same prompt I put in the gallery for attendees to use. This prompt asked visitors to choose a strand of fiber for an aspect of their identity, discuss why they chose it, and weave it through the loom to add to the collaborative piece. My woven textile is a representation of my own identity. This exercise gave me a thorough experience of self reflection, and made me think about how others might identify and interact with this piece. I interacted with the other two prompts in my installation as well because I felt it was important for me to put myself in the position of the visitors.

### Results/Analysis

My topic and methodology statement, three interview transcripts, the video documentary, pictures from the social action makerspace at PS188 and links to some inspirational social practice artists are all on my website at <https://lizatorrence.weebly.com/making-for-change.html>. All of these resources showcase results of my investigation. The video documentary includes quotes from my interviews that I feel were most significant through this process. It also shows footage of various makerspaces. Making this video helped me find the significant conversation points in my interview transcripts, and connect these conversations to each other. For example, Danaleah's point that it is important to discuss social issues that affect students on a daily basis relates to Dr. Lahana's point that the material should be passion-based. This relates to the quote from David Wells, where he says "getting people into spaces doing more in-depth personally driven experiences is a better step than the steps we were taking ten years ago" (Torrence, 2018, 4:53). Dr. Lahana also mentions that there is no long term nutrition to solely learning a new tool. This piece of information drives my project.

The pictures from PS188 were not only an inspiration to me in creating the exhibition, but these pictures, along with the descriptions and links to social practice artists, were meant to provide references for visitors in the exhibition. The QR code to my website is labeled on the third question, and the website can be accessed through the monitor as well.

Also on my website, and featured in the exhibition, is a piece that showcased the Criteria of Success list. This list was formulated from all interviews and experiences during this project and is a direct analysis of my research question, “what are makerspace facilitation strategies that utilize a critical pedagogical framework, and which are successful in informal museum settings with short-term visitors?”. The Criteria of Success list is as follows: A content-driven affinity space is created, it promotes accessibility to complex or controversial social issues, it 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, and the product responds to a social issue and ultimately enacts change in society. For the exhibit, I embroidered a simple version of this list on a pillow to replicate the idea of making. This list is a direct analysis of the investigation I conducted. 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 research that I collected through my methodologies was helpful in creating my installation within the exhibition. I designed three questions and prompts that guided visitors through making around social issues. The first prompt asks visitors to consider their identity as I

mentioned before. The second question asks visitors to think of a time when they felt mistreated, or saw someone else being mistreated, and to have a conversation about it. Visitors are then prompted to come up with a word that resembled this negative experience, and then to find a word that counteracts it. They then are to emboss their word on a leather keychain. The third question asks visitors to think of a social issue that resonates with them. There is also a list provided of some social issues. Visitors are then prompted to address this issue and respond to it using any method of their choice, whether it be a poem, an invention, a manifesto, or a performative piece. I was given feedback during one of my critiques to use a variety of materials for this prompt, and I feel that it gave visitors the agency to create anything, however, some more timid visitors may have felt intimidated by the prompt and amount of materials. Overall my installation was meant to simulate an informal social action makerspace, therefore I needed prompts to take the place of a facilitator. I do believe my installation was ambitious, and it required confident and risk-taking individuals to be fully activated. To my surprise, I have seen many people engaged in the activities, and have heard in-depth conversations sparked by the questions and prompts. This is only a small step into what social action makerspace facilitation can look like, and I am looking forward to creating more experiences using facilitators in this fashion.

The most important takeaway I received from this investigation is the importance of content through reflection. Dr. Lahana can provide resources for content to his students in a more sophisticated fashion because he sees his students daily. He also can facilitate in-depth conversations over time to encourage students think critically about power dynamics in society. So how can a social action makerspace be successful if it is informal and only for short-term visitors? Using reflection, personal experiences and passion as a gateway for social issues is

highly effective in this situation. When you have little time to research a whole new topic, using one's internal resources and previously established mental constructs is very beneficial. It is still important to have technology on hand to look up resources if needed, but to get visitors engaged as quickly and in-depth as possible, self reflection is key. This is why I believe my prompts were successful. Each question and prompt invited people to have conversations together about personal experiences, and then asked them to consider these issues on a bigger scale. Some people did not feel comfortable chatting with others for various reasons, so having a facilitator to guide inquiry-based learning to investigate social issues could enhance this aspect. I also believe that the best way to get people engaged in making is through questions.

### Implications for Teaching

Whether I am a classroom teacher, or a museum professional, I believe that this research project is incredibly beneficial to myself as an artist and educator. I have never been an artist-researcher in this way, and I find it incredibly enlightening. I feel that due to this experience of researching through art, I would like to help students use some of these methods when artmaking to have a more holistic experience. Furthermore, I will always understand and implement art education that is not only based on choice, but aligns with students' passions, gives plenty of opportunity through conversation and research, pushes them to learn new methods of art and making, and critically investigates an aspect of their world. I also feel that collaborative projects allow students to gain diverse perspectives and outcomes, and I hope to encourage this as well. My Criteria of Success may not be foolproof, therefore I will continue to edit it to find the most effective social action makerspace strategies that uses tenets of critical pedagogy. If I continue to give professional developments to educators, I will be sure to provide prompts similar to the ones in my installation in order to get people talking about important issues that may not come up

otherwise. I will also push tool exploration, considering this seems to be the most significant makerspace learning approach. I hope to continue this research, whether it be towards a new degree or as a consultant for institutions. I foresee the depth that my research question holds and I am excited to continue the investigation.

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[https://www.youtube.com/watch?time\\_continue=303&v=SEBVA1\\_DGjo](https://www.youtube.com/watch?time_continue=303&v=SEBVA1_DGjo)