

Manual Transformation: Exploring Adult Transformative Learning Through Hands-on Artmaking

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Background of the Problem

The idea for this study, which investigates adults' hands-on artmaking and how they experience possible transformative learning through the process of creating art, emerged from my experiences as an artist and educator. During the many years that I have been teaching studio art in various educational settings, I have frequently recognized that learning and artmaking paths vary widely. Even though some students had extensive artmaking experiences, they often experienced frustration and confusion when they were asked to create an open-ended project. In contrast, some students who did not have any prior experience (e.g., the last time that they were given any art related activities was in kindergarten or elementary school) seemed to be freed to just play and jump into a "let's have fun" mentality, which ultimately helped them to experiment with various materials without worrying too much. In this case, I observed that they were much more exposed to sensory experiences than those who were resistant to engage in experimentation. Interestingly, some seemed to have found opportunities to re-think themselves as artists, which did not seem likely

at the beginning. In a sense, some found themselves through the journey of discovering their own materials and working methods. Regardless of the kind of artwork produced, the hands-on artmaking was definitely inviting the students to think beyond the visual and tactile. I also noticed that in some cases, hands-on artmaking was not confined to the class situation but expanded into their personal and professional lives. As a teacher confronted with mixed outcomes, I was eager to find out which dimensions of hands-on artmaking helped some students change their assumptions about art, artmaking, and themselves, and how they went about creating exceptional artworks and enjoying the overall process.

Reflecting on this observation inspired me to investigate how this shift takes place and which aspects of hands-on artmaking helps adult learners to be “transformed” over the course of time. I also wondered about the relationship between such artmaking and a transformative learning framework (Cranton, 1992; Mezirow, 1991). From a pedagogical standpoint, I would like to know how teachers and facilitators of any studio-related class could best design curricula to foster transformative learning experiences through hands-on artmaking.

Related Literature & Problem Statement

Transformative learning theory, which is rooted in adult learning theory, states that adults could experience transformative learning by reflecting and revising structured assumptions based on personal experiences, thereby gaining a newfound perspective (Mezirow, 1991, 2000). The theory encourages learners to critically reflect on their assumptions and preconceptions in order to transform their existing frameworks and perspectives (*ibid.*). Mezirow (2000) asserts that learning involves the process of using prior knowledge to understand and construct a new and revised interpretation of the meaning of one’s knowledge, as well as the experience to move forward to future action (p. 5).

The core of Mezirow’s theory was originally derived from a 1975 study that examined the various factors that influenced the success of women who had re-entered community college programs after taking a hiatus. In this study, Mezirow concludes that the transformation of perspective was one of the most significant elements in determining the success of their transitions and learning experiences. He lists the ten phases of transformative learning:

1) A disorienting dilemma, 2) self-examination with feelings of fear, anger, guilt, or shame, 3) a critical assessment of assumptions, 4) recognition that one's discontent and the process of transformation are shared, 5) exploration of options for new roles, relationships, and actions, 6) planning a course of action, 7) acquiring knowledge and skills for implementing one's plans, 8) provisional trying of new roles, 9) building competence and self-confidence in new roles and relationships, 10) a reintegration into one's life on the basis of conditions dictated by one's new perspective. (Mezirow, 2000, p. 22)

On the other hand, Cranton defines transformative learning as the process of “people examin[ing] problematic frames of reference to make them more inclusive, discriminating, open, reflective, and emotionally able to change” (1994, p. 36). While Mezirow primarily points out a single event— “a disorienting dilemma” as a way to be provoked to experience transformative learning, Cranton also argues that events that are gradual and cumulative over time can foster transformative learning (p. 36). According to Mezirow, transformative learning happens in four ways, which are “elaborating existing frame of reference, learning new frames of reference, transforming points of view, and transforming habits of mind” through critically reflecting on one's belief, assumptions, and bias (p. 19). And in all four of these ways, “changes” can occur along a spectrum, from very intense changes to quite subtle changes. Ultimately, transformative learning encourages problem solving through the act of redefining or reframing the problem. In line with the importance of looking at the world with newfound perspectives, scholars have written that art is known to not only refine our sensory experiences, but also to broaden our imaginative and creative capacities (Dewey, 1934; Eisner, 2002; Greene, 1995; Mezirow, 2000; Siegesmund, 1998). In a sense, seeing through art enables people to interpret everyday life experiences and objects in different ways while “transforming one's consciousness” (Eisner, 2002, p. 11). Consensus in the field of education has suggested that the arts have a significant role to play in refining our sensory system through sound, sight, taste, and touch, and in fostering our imaginative capabilities, which enable us to have fulfilling, humanistic, and constructive experiences (Greene, 1995; Eisner, 2002). In fact, emotive, sensory, and kinesthetic experiences may foster transformative learning through multidimensional learning using arts-based activities (Merriam, 2004, p. 95). Accordingly, one could expect that arts-based activities may support transformative learning experiences. Likewise, Cranton (1994) claims that some arts activities shape the learning process into one that is more “creative,

innovative, and [goes] outside the cognitive realm,” and ultimately this can be effective when fostering transformative learning (p.153). She further asserts that she witnessed how arts-based projects and activities enable transformative learning, giving a longitudinal observation that the process involved evokes a transformative experience (ibid.). Simpson (2007) reports that arts-based activities, such as journal writing, collage making, performing, and poetry help participants who recently underwent intense emotional difficulties to overcome and experience transformative learning. Similarly, Lawrence (2012) argues that the arts have the power to transform individual worldviews, and when experienced collectively can potentially transform whole communities (p. 471). Likewise, a community of older adults over the age of 50 who participated in community-based art education programs underwent transformative learning experiences through the use of arts-based activities including storytelling, social interaction, and collaborative artmaking (Lawton & La Porte, 2013). With their wealth of knowledge and unique perspectives, such arts-based activities enabled these adults to integrate themselves within their community (p. 318). In line with arts-based activities and transformative learning, thirty-four pre-service teachers were able to construct newfound ways of thinking and process the dilemmas of their student teaching practicum through arts-based student teaching seminar sessions (Bhukhanwala, Dean & Troyer, 2017). During the qualitative study these pre-service student teachers’ took photographs, and made journal reflections and artworks. The transcribed focus group interviews were analyzed in order to discover the importance and possibilities of arts-based activities in teacher education contexts. James (2007) suggests in his doctoral dissertation that painting courses that are based on working from observation can ultimately support critical reflection and adult transformation in significant ways, regardless of prior artistic experience. The author examined the artistic production of fifteen adults in painting classes at a graduate school of education and found that at least five participants showed profound evidence of transformative learning in their paintings and writings, as well as in their attempts to develop and transform their personal identities, beliefs, and perceptions in creative ways.

Findings from the literature led me to speculate that artmaking that involves more hands-on and tactile aspects (such as sculpting) may foster transformative learning in a unique way. However, there was almost very little

empirical research on artmaking that involves more active hands-on actions nor had there been research done in studio classes in higher education settings. For example, although Eisner asserts the importance of “seeing” in the realm of the arts—which, among other sensory experiences, enables people to recognize, re-contextualize, and interpret their surroundings in new perspectives—he pays significantly less attention to “touching.” Therefore, there is a very little research about how artmaking that involves more active use of hands, such as sculpting, can be transformative. However, there is a lot of research on the value of kinesthetic learning and the relationship between the hand and the brain on human intelligence in education (Montessori, 1917). Wilson (1998) explicitly describes the importance of the use of hands in relation to our brains in the context of human learning and development of intelligence.

Similarly, although there is a lot of literature on the education of art students (art majors), particularly pertaining to the discussion of educating artists (art professionals) in art school contexts (Buckley & Conomos, 2009; Elkins, 2001; Salazar, 2013; Madoff, 2009); the education of other graduate students in various disciplines enrolled in art studio classes receives less attention, despite the possibility of the continued development of the adult students. This gap in literature reveals a need for research investigating the relationship between transformative learning and hands-on artmaking. I first conducted a pilot study in 2015 that sought to understand if transformative learning could be detected by investigating three graduate students (majoring in various disciplines) as they engaged in hands-on artmaking in a sculpture class. Findings from the study

¹ One could argue that almost *all* or any kind of art-making processes may involve a *hands-on* aspect and that this isn’t necessarily limited to or unique to three-dimensional art-making. However, the *hands-on* aspect of art-making within a hybrid maker-space art studio where students are encouraged to work with a diverse range of materials and tools, involved more active hands-on engagement and movement (e.g., grabbing, mashing, clicking, tapping, scratching, throwing, burning, hanging). Therefore, I suspect that such a studio environment and such a curriculum contained more *hands-on* aspects compared to other art-making activities such as painting, photography, printmaking, and drawing.

revealed that these students underwent transformations in their perspectives concerning their identities as artists and to some degree, in their approaches to artmaking, as well. However, the pilot study was limited by the fact that it only considered non-art majors. A curriculum designed specifically for the purpose of eliciting transformative learning was also absent.

Therefore, this doctoral research was built from, and also meant to improve upon the pilot study by investigating what transformative learning looks like in a diverse group of adult learners at a graduate school of education who attended sculpture classes intentionally designed to enable such transformation, and where specific class activities supported such change.

The main research question is: when transformative learning is part of the teacher's intention, how, if at all, does learning through hands-on artmaking in a sculpture class transform these adults with regard to their understanding of their *identities* as artists and learners (“Who am I?”), their *approaches* to artmaking (“How do I make art?”), and their *understanding* of art itself (“What is art?”)? Furthermore, the study seeks to understand what aspects of their class experiences contributed to these transformations.

The sub-questions are:

- In what ways do students identities as artists and learners transform? What aspects of their class experiences attributed to these changes?
- In what ways do students transform their approaches to artmaking process and materials? What aspects of their class experiences attributed to these changes?
- In what ways do students' perspectives of art itself transform? What aspects of their class experiences do they attribute to these changes?

Sculpture curriculum for TL (key activities)

Since my study aimed to investigate adults' transformative learning experiences through hands-on artmaking, the curriculum was specifically designed for the purpose of eliciting such transformations. One of the course goals was to offer an opportunity for students to find their own ways of making, to seek 'new' ways of seeing and thinking, to search for their materials, and to develop personalized understanding of what art and artmaking is. The intentionally designed fifteen-week schedule as part of the curriculum was used to instruct all

three semesters in 2017. As part of the course requirements, students were required to: (1) complete two mini sculpture projects under prompts and guidance, and one final sculpture project that is open-ended, (2) participate in two in-class “Making” sessions, (3) submit twelve weekly journal entries, (4) write a final reflective essay, (5) contribute images and posts to the shared course blog, and (6) conduct a final PowerPoint presentation on the last day of class.

Following Cranton’s (1992) suggestions that educators encourage critical reflection moments for students, specific activities and assignments were inserted into the course. These activities helped the researcher to track the learning stages and moments of assumption, reflection and transformation inherent in the participants’ initial stage. First, the Demographic Survey and the Art Survey—both containing eighteen questions regarding students’ demographic information, educational backgrounds, prior art experience, and their views on art and approaches to artmaking—helped the researcher to identify students’ preconceptions about themselves as artists, their approaches to artmaking, and their understanding of art itself. Second, twelve Weekly Journal entries containing a series of pointed questions helped students reflect on their learning and perspectives. Third, Making sessions were inserted to challenge students’ prior assumptions about materials and approaches to artmaking, as well as to test their artistic abilities. There were two kinds of sessions—an individual session and a collaborative session where students were asked to create a sculpture with an unexpected set of materials (that the instructor prepared in advance), thematic prompts, and limited time (30-40 minutes). Fourth, the class took a field trip to contemporary galleries to expand the students’ understanding of art. Lastly, individual consultations with the instructor and ongoing discussions on a shared blog, involving dilemmas, excitement, and frustrations in class, were used in order to gain an in-depth understanding of students’ learning experiences.

Methodology

[Type of Study]

As Merriam (1998) defines it, qualitative research conveys various forms of inquiry that help readers understand the meaning of social phenomena (p. 5). She further asserts that qualitative researchers are interested in understanding the meanings people have constructed; that is, how they make sense of their

world and the experiences they have in the world (p. 6). Likewise, Maxwell (2004a) claims that qualitative researchers aim “to understand how events, actions, and meanings are shaped by the unique circumstances in which these occur” (p. 30). Merriam (1998) argues, “a case study design is employed to gain in-depth understanding of the situation and meaning for those involved. The interest was in participants’ learning process rather than outcomes, in context rather than specific variables, in discovery rather than confirmation” (p. 19). Therefore, the study used qualitative case study design to gain an in-depth understanding of graduate students’ transformative learning experiences during their hands-on artmaking in a sculpture class. Accordingly, this qualitative case study was conducted in a sculpture class over three semesters in 2017 at a private graduate school of education on the East Coast of the United States.

[Participants]

A total of thirteen participants were recruited via email invitation based on their willingness of participate in the study as well as purposeful selection method by examining their class artifacts, demographic surveys, and weekly journal responses after each semester ended. These thirteen participants studied included four men and nine women who majored in various educational disciplines and who took the sculpture class in 2017 (Spring, Summer, or Fall Semesters). Some of their majors included Art Education, Arts Administration, Science Education, Math Education, Instructional Technology, Music Education, Adult Learning and Leadership, Clinical Psychology, Social Studies Education, Early Childhood Education, and Curriculum and Teaching. These 13 participants varied in terms of their prior art-related experiences, ages (20s and 30s), and cultural backgrounds.

[Data Collection]

The data set for each participant was comprised of common qualitative data types—interviews, retrospective surveys, observations, and class artifacts (Yin, 2009, p. 105). Overall, the study employs “multiple sources of evidence,” which “strengthen findings through the convergence or triangulation of the data” (p. 239). More specifically, there are two different sources of data (student level and teacher level) existing across two different points in time (in-semester and post-semester).

First, student level data included both in-semester and post-semester data. During the semester, all of the students, not just the five participants, were required as part of normal class conduct (1) to create three sculpture projects (two mini structured projects and one open-ended final project), (2) to submit

12 weekly journal entries and one Final Reflective Essay, (3) to fill out the Demographic Survey and the Art Survey on the first day of the semester, and (5) to post a number of photographs documenting their processes and three sculpture projects on the Shred Online Platform, Cluster. After the semester ended and final grades were submitted, 13 out of the 33 students from the previous three 2017 semesters were recruited. Accordingly, 13 participants agreed to participate in the study and met with the researcher for individual interviews and Retrospective Surveys.

Second, teacher level data included both in-semester and post-semester data. During the semester, the researcher kept personal teaching notes for all students. These were a 15-week long log of student responses during Group Critiques, discussions, individual consultations, and casual conversations from both inside and outside of class. In line with Creswell's (2013, p. 167) suggestion that case study researchers sometimes switch between the roles of researcher and participant, my observation was sometimes modeled after the "direct observation" style, and sometimes after the "participant-observation," style (Yin, 2009, p. 115) .

Since I was looking at possible transformations in each participant's perspective on art and from their experience with hands-on art making, an interview approach is one of the most appropriate and important, since it provides in-depth knowledge and descriptions of each participant's experience (Kvale, 2007). All 13 students who were recruited to participate in this study were interviewed individually depending on each participant's personal schedule. In order to avoid a power imbalance between participants and myself, all interviews were conducted after the semester ended and after the final grades were submitted. A semi-structured interview style incorporating about 20 key questions was used in order to understand "themes of the lived daily world from the subject's own perspectives" (Kvale, 2007, p. 10).

The retrospective post-then-pre design is a popular way to assess learners' self-reported changes in knowledge, awareness, skills, confidence, attitudes or behaviors. It takes less time, is less intrusive and avoids pretest sensitivity and response to self-reported changes that shift biases that result from pretest overestimation or underestimation (Howard, 1980; Rockwell & Kohn, 1989; Pratt et al., 2000; Lam & Bengo, 2003). In the retrospective post-then-pre design, both before and after information are collected at the same time. Participants were asked "to rate their current knowledge, skill, attitude, behavior now or after as a result of the program. Then to reflect back and rate these

before participating in the program.” This method eliminates any power imbalance between the students and the teacher since the data was collected after the class ends.

[Data Analysis]

Multiple sources of information were collected to enable triangulation among all of the data, and to ensure that findings were consistent (Yin, 2009, p. 241), as well as to analyze each participant in-depth from multiple vantage points. The following table offers a summary of how each data source was analyzed. Using transformative learning theory as an interpretive framework, this study analyzes five students’ semi-structured interviews, retrospective surveys, artworks, and weekly reflective journals to understand the nature of transformative learning in an intentionally designed sculpture curriculum.

Data analysis was drawn from a set of six commonly used analytic activities described by Berg (2009, p. 352). Following and applying his suggestions, all collected data was ‘organized to be ‘read’ in some fashion. In this study, I transcribed all of my interviews and teaching notes. Other data, such as each participant’s written assignments, and photographs and video clips taken during the duration of the semester, were organized chronologically to track any evidence of transformation and the arc of critical reflection moments. Then, after several careful analyses of readable data “codes [were] analytically developed and inductively identified” (p. 352). I employed open and axial coding methods to find relevant themes and codes based on three criteria—(1) participants’ identities as artists and learners, (2) participants’ understanding of art itself, and (3) participants’ approaches to art making—all of which were based on the main research question. The participants’ 12 weekly journals, Reflective Essays, Retrospective Surveys, interviews, and posts on Cluster, as well as my teaching notes on each participant, were analyzed based on the transformative learning cycle and color-coded with notes concerning all of the data.

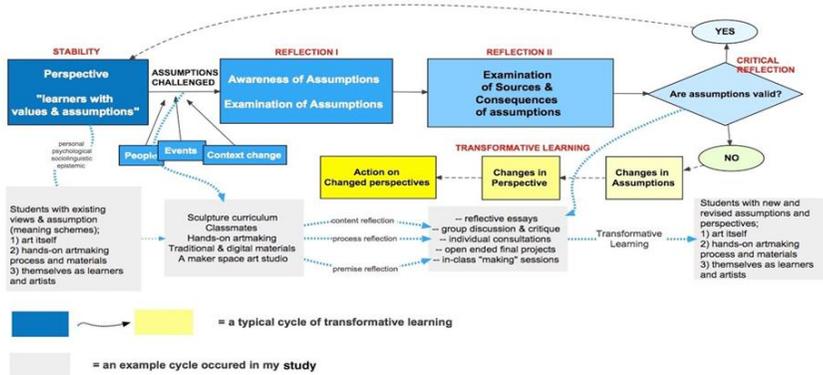


FIGURE 1. TRANSFORMATIVE LEARNING CYCLE DIAGRAM

Findings & Discussion

The narratives of five students (Anne, Gina, Tim, Stella, Molly²) in the findings were written as stories of their transformative learning journeys in the sculpture class. In order to organize each student's unique transformative learning journey. Following Cranton's transformative learning journey diagram, each participant's narrative is divided into three stages: *stability*, *reflections*, and *transformations* (see Figure 1). Within each stage, each participant's narrative was written from three different angles—identity as artist and learner, understanding of art itself, and approaches to artmaking—according to the main research questions.

Anne was an international student from China, in her mid 20s, and in her last semester of her MA in Instructional Technology and Media. She decided to major in instructional technology because she thought that this training would afford her better opportunities and greater financial stability throughout her career. **Gina** is in her early 30s, was an international student from Argentina who used to work in the financial district in Buenos Aires. She decided to develop her career and began studying in the Economics and Education program. **Tim**, a Caucasian American in his late 20s, was an MA graduate student in the Science Education Program at Teachers College. It was his last semester, and he had been student teaching at a middle school in NYC that

² Pseudonyms were used for all thirteen participants name

emphasized STEAM curricula. He was about to graduate and already got a job offer to start working at school that encourages STEM teachers to be more creative with their instruction. **Stella**, a Caucasian in her early 30s, was a student in the Art Education Program. Prior to her graduate study, she used to be a professional graphic designer, primarily working with typography for design firms for about 5 years. Before majoring in graphic design in undergraduate study, Stella used to paint portraits with oil paint. **Molly**, a Latino American in her early 30s, was in her last semester of the Arts Administration Major when she decided to take the sculpture class. She had been working as an administrator at numerous museums in NYC, and her job also intersected with some curatorial works. On her demographic survey, Molly noted that she always used to love looking at art, but “never really had a chance to take a studio class.” However, Molly enjoyed taking photographs and editing them. In the interview, Molly admitted that her choice to register for the sculpture class was initially because she wanted to find a class where she didn’t have to “think a lot.”

Transformation I – Identity: Just a learner to an artist

All five participants somewhat started with not so much expectations for the class but rather their initial reasons to take the sculpture class was to fulfill an elective and to find something fun and different from other traditional academic classes. In Anne’s case, she noted on her retrospective survey that she expected to learn “how to gain artistic techniques for the competitive job market” in the sculpture class. However, towards the middle of semester, after the gallery trip, her initial thoughts regarding her identity as a learner and artist started to change. She started to reflect on and challenge her initial thoughts about herself as a non-artist after the gallery trip:

“During the trip, we were required to interpret the artwork, so I paid more attention to each work. And I really tried to feel and understand the work from my perspective. Then I realized that even though I still couldn’t understand all of them, I began to have my responses to the artwork. I jotted down notes and took close up pictures for myself when I get interesting ideas looking at some artworks. Sometimes, it was almost like stealing and sharing ideas from these artists for my own art project.”

The excerpt above reflects Anne as she began see herself as an active viewer, questioning the use of material, “stealing” ideas from artists, and in

general engaging differently with art. In a sense, Anne's identity as a non-artist and passive viewer shifted to that of an artist and active viewer who would get ideas and interpret works on her own. Towards to the end of semester, she demonstrated a greater confidence in choosing materials and finishing her project without asking for teacher affirmation, which was not the case at the beginning of the semester. She shared her process of choosing materials during Making session on her weekly journal:

“During the making session process, we were given a greater sense of purpose and direction. My teammate and I were working towards a more tangible goal. So I actually felt more successful at the end of the session than I did after normal studio sessions. I felt like I created a finished product that I was proud of. However, I realized how I could lead my individual studio time just like the making session so that I can follow intuitive process. In a sense, I'm not afraid of failure anymore. I'm confident that I could find other interesting ways from failed attempts. I felt like an artist in some way during this session. I feel more confident about [the] artmaking process, and I think this is what many artists might do in their studios”.

Anne's final project, which she titled *The Life Cycle*, contained various crafted elements that were left open for the viewer to manually play and interact with. This was a result of her newfound appreciation of life's everyday experiences—particularly hers and her family's. As an artist, she journeyed from being a passive learner who took the class to fulfill a breadth requirement into a more active learner and artist. She became a person who constructed meaning and visually expressed her life experience, rather than accepting conventions and holding onto her existing beliefs about herself or the artmaking process.

“Throughout the semester, I think I discover and reconnect with the artist in me. It's been always there, but I never let my inner artist come out because of my fear and lack of confidence. This class pushed me [to] step out of my comfort zone and challenge me to look into myself carefully. Even though the artist in me is not perfect, I am glad to reconnect with it”

As shown above, Anne definitely found that her new self-identified as an artist and explorer who had stepped out of her comfort zone and moved beyond her initial assumptions. Instead of limiting herself as a non-artist, she reflected on herself through various class activities (Making Sessions, gallery

trips, etc.) to find herself 'being' an artist. And this newfound identity helped her look at art differently and create her art in her own way.

Even though Stella had majored in art and worked as a professional designer, Stella had had some set criteria for truly acknowledging herself an artist. After the first day of the class, students were asked to post a few images about themselves (excluding selfies). Stella uploaded her typography works from her previous job. When the class discussed everyone's images, Andy [pseudonym] commented that her typography work looked amazing and professional, telling Stella that was an artist. In response to his comments, Stella strongly denied that she was an artist and typography works were not even close to art. Similar insecurity was portrayed during the collaborative making session when she was creating the longest sculpture with her teammate. She further shared her thoughts about experiences as a graphic designer:

"I did mostly two-dimensional work, illustration and design work, a lot of work with typography. When I think back, I don't think what I was doing was art—at least not similar to the sculpture class. Things were very structured, and it was all about problem solving, almost every project that I was given or even ones that I made for myself, had a clear problem to solve like how we can sell this product or how can we create a clear poster for an event. Things like that...I've done more recently but I didn't have hardly any three-dimensional work before taking the sculpture class."

It was during studio time when Stella was working on her final sculpture towards to the end of the semester that she was finally to have an artist's mindset. Inspired by the tunnel structure sculpture from the collaborative making session a few weeks ago, Stella wanted to create something that had interior and exterior structures made of plaster and wire to illuminate a notion of depth. As mentioned earlier, Stella was hesitant to use plaster at the beginning of the semester because of it gets messy and power. Part of this was due to her prior experiences as a graphic designer who was used to doing everything on computer programs and paper. However, Stella liked the idea of challenging herself with unfamiliar material since she thought that the limitations she had during the making session (that gave her the turning point to rethink about her identity as an artist) actually helped her be in the zone of flow, which is what she saw the artists doing in their studios. According to her Weekly Journal:

“I want to see what happens when I have a very rough plan for my final sculpture but let my materials, which are plaster and chicken wire, guide my process similar to what I did in the second making session. I may feel unstable, but I know that I can be in the zone of making.”

After completing her final plaster sculpture, she shared her thoughts about her newfound identity after the group critique. She wrote:

“I do see myself as an artist because I created something completely on my own informed by my personal feelings and ideas. You sort of owned the idea and make all decisions independently. Acknowledging myself as an artist also pushed me to trust my intuitions. I felt like I was in those freezing moments where I was focusing on my process completely.”

One can see how Stella was in control of her entire artistic process for her final sculpture. Instead of being insecure about her artistic ability or being afraid of using unfamiliar materials, Stella challenged herself to follow her own thoughts, feelings, and intuitions.

Transformation II – Approaches to artmaking: Fear to Fun

Tim brought a huge assumption with him to the class about the prior artistic training of his peers, and their subsequent talent. Consequently, he thought that he would be the least creative person in the class, partly due to his lack of prior experience and exposure to art. During the first artmaking session, which asked students to transform their quick gesture drawings into three-dimensional forms about one emotion, according to my teaching notes, Tim asked for my affirmation concerning whether his drawings looked right. He recalled this moment in the interview:

“I was caught with the idea of getting perfectly rendered drawings. But then I was running out of time with all twelve drawings. I didn’t trust my intuition with my drawing. Every little mark and line look[ed] wrong to me and that’s why I kept asking you about your opinion.”

However, he started to trust his decisions during his individual studio time—an experience which was similar to how artists would work in their studios. He started to be comfortable with ambiguity, experimenting with

materials even without a clear goal. His initial thoughts about digital process and materials no longer existed in his final work. He described his studio process in his Weekly Journal entry:

“Working on my final project, the entire journey was an adventure. I never imagined that I would use stop motion animation, something not tangible, to create my work. My initial idea started with exploration of various emotional stages abstractly. Even though my final piece will be in the form of video, I still wanted to include various three-dimensional physical textures, forms, shapes, and compositions into my film... I shared my thoughts with Sohee and she showed her collaborative film that illustrates an entire process of making as part of the work. I had a broad plan but everything else just kind of happened like it was meant to be.”

As seen in the excerpt above, Tim was no longer constrained by the idea of the physicality of the materials. He played with the idea of using 3D, 2D and 4D elements, as well as the stop motion animation, which dealt with time. During the group critique, Tim shared with the class how he had a lot of experiments that also guided his process. Another important transformation was Tim’s use of digital materials in his final sculpture. Different from his initial thoughts that art pieces made with digital fabrication tools and materials were not true works of art, Tim actually started to incorporate almost all digital fabrication tools in the studio into his work. For instance, for the couple of scenes in his stop motion animation, he used plastic sheets to laser cut various geometric shapes that were painted in acrylics. Because the plastic sheets were iridescent colors, Tim used different LED lights for reflecting effects. In between the laser cut pieces, one could see an interesting interplay of light and shadow from the reflections. Tim recalled his process with the laser cutter in the interview:

“You know, I never imagined using a laser cutter in my work, because I didn’t see the potentials at the beginning other than efficiency. After seeing other artists’ works made of digital materials, I started to wonder, is it about the materials or is it about the idea. Then, when I was working on different scenes in my final work, I naturally gravitate[d] towards using the laser cutter to get more than 100 pieces of plastic shapes. And then I immediately thought of using the laser cutter somehow. I was so attracted to the idea of coming up with many variations of geometric shapes that were first hand drawn, then transferred to the Illustrator, then edited, and finally output using the

laser cutter. Even though the machine cut those shapes, every single piece of plastic looked different because those were originally coming from my drawings.”

Tim was no longer comparing himself to other classmates in terms of his artistic creativity. He was fully immersed in his own process, and he was confident with his approaches, including the failed attempts.

Gina showed a lot of anxiety at the beginning of the semester about her artistic skills and talents. On the demographic survey, she noted that she had only used “paper, pencil, and crayon before.” In addition, she responded to her demographic survey as, “I feel nervous about the class since I have to get an A or A- to fulfill the electives. During the Making session with its constraints of time, materials, and process, the second part of the making session on 2D to 3D challenged Gina to push her comfort zone. She made an elegant three-dimensional and a high relief like sculpture made of her eleven drawings, which she created by tearing off, cutting into, and folding with her hands. As for the reflections on her process, she shared her thoughts in the Weekly Journal:

“I felt like an artist during the making session because I was feeling more confident and was starting to feel like a master with a lot of materials. The spontaneous energy of it also made me feel like an artist because creative ideas were rushing to my head without planning too much. Working with the wire mesh and my torn-up drawings made me feel somewhat liberat[ed] and sad at the same time. At first, I didn’t like the idea of ‘destroying’ my drawings, but then it was actually ‘transforming’ them into a Volumatic form.”

Gina saw her approaches to artmaking as similar to baking a cake, which indicated her shift in her initial approaches to art. Instead of being nervous and overwhelmed with the process, Gina trusted her decisions and intuition. She further added her feelings about newfound approaches to artmaking in the interview:

“reflecting back, I thought that using [a] laser cutter or 3D printer is not genuine, or the artist is being lazy. But I’ve realized that it’s not really about the tools itself—it’s how we see and think about the idea. Even though I wasn’t confident about how to use the laser cutter at first, I found my own way of working with it through multiple attempts. Even for my final project, I did a lot of thinking and brainstorming before I

physically make the work, but then the rest of the work just worked out—nothing was coincidental.”

Gina’s approaches to artmaking evolved so much that she couldn’t remember what it was like to create a piece at the beginning of the semester. After reviewing her previous Weekly Journal entries, she wrote her reflections in the last journal:

“One of the most surprising thing[s] that I found from all my journal[s] was that how much I didn’t trust myself in the process... I was so doubtful when I hear[d] the artist, Sarah Sze talk about her process of spending a lot of time thinking and conceptualizing ideas but then the actual making part just happened at once. But now I saw myself actually [go] through the similar process—which is amazing.”

Transformation III – Understanding of art: What is art?

Initially, Gina considered Discobolous Greek statue and Molzan’s deconstructed painting images as work of art on her art survey. After the critique of the first mini project, Gina expressed concerns on her weekly journals since she couldn’t accept her peers’ sculptures that showed less labor and completeness as art. It was clear that Gina considered the ‘labor’ and ‘craftsmanship’ as main factors in validating works as ‘art’.

As the semester drew to a close, Gina asked me a question with a puzzled face as evident on my Teaching Notes. She asked about art objects being exhibited in the museums and how they are different from contemporary art seen on the gallery trip. In the interview, she recalled this moment as the following:

“Back then, and maybe still now, I’m still questioning how we define art. I visited [the] Metropolitan Museum of Art after the semester ended. And I’ve realized how art can be such a flexible term, which can be applied to contemporary times but then ancient times as well. I think who created objects or painting back then like 600 BCE probably didn’t [think] of their objects as what we see and call art today since it had a special purpose like religious and ritualistic matters. It’s fascinating how art is framed today and how broad it can be interpreted.”

In a sense, Gina was no longer holding her traditional presumptions about art being limited to made objects seen in the museum. She even started to

further question the relationships between art objects in the museum and contemporary gallery, and to further explore how that challenged her to rethink about what art is. During the group critique on final work, Gina kept using the word “artwork” for everyone’s piece, which, according to my notes, was not the case at the beginning of the semester. In her Weekly Journal response, Gina noted how she “appreciated everyone’s use of materials and presentation.” She also noted how she believed that the artwork of her peers could be just as valuable as works in museums and galleries. She said in the interview, “art is no longer difficult. Or there may be other art forms that I feel that [are] too overwhelming and difficult. But I know that I don’t have to totally understand the work even if I just like how the artist colored the surface or presented the work in an interesting way.” It’s clear how her initial understanding of art just being a Greek statue has transformed to a different framework. Similar to Gina, Tim’s idea of art was limited to classical marble statues. When he saw artists who use digital materials, Tim faced a critical reflection moment towards the end of the semester when encountering lecture slides featuring the works of other contemporary artists who use digital materials and processes:

“I was completely blown away by Josh Kline’s work made of not only 3D prints but also, everyday objects like shopping carts, plastic bags, and random hardware tools. Last week, I was somewhat skeptical about the use of 3D prints as art materials. But how Kline used 3D printing process as part of his work with theatrical settings and prop like objects was authentic. Every piece of materials in

his work seemed to be so intentional—even a slight angle of it. I realized that it’s not always the materials or process that define what art is, but instead it’s determined by artist’s genuine thoughts and attention to extreme details.”

He was amazed at Kline’s use of not only digital materials and 3D prints, but also the fact that the artist’s work was very carefully orchestrated, using both found objects and 3D prints. He also used the metaphor, “theater” when describing Kline’s work because of how the works were installed on the floor, as well as on the walls. In a sense, Tim’s initial understanding of art itself had transformed from his default definition of art as a Greek statue. In his own work, a short stop motion animation, Tim incorporated a mix of different materials that included 3D prints and laser cut pieces to express different stages of emotion—which indicated his shift in thought. Once the semester ended, Tim continued to hold his changed perspectives when looking at and thinking

of art and took action. In his interview, he shared his experience of taking his family to different galleries in the city:

“My sister and my mom visited me from Virginia, and I had to take them to the galleries in Chelsea because I sort of wanted them to feel what I felt during the class—about art and the fact that there are many different forms of art [that] exist in the world. My sister in fact she was thinking of switching her major to fashion design, and I know fashion could be very different from fine arts, but I wanted to give her some inspirations.”

Molly was holding onto her initial definition of art, assuming that digital process and materials cannot produce a “true work of art” or “high art.” In her response to the Retrospective Survey, she also admitted that this thought was partly influenced by her work experience as an administrator at museums primarily working with traditional painters and sculptors. Similar to her thoughts about digital materials, she did not count her peers’ works as works of art:

“I don’t know why I thought about it in this way, but unconsciously, I automatically didn’t identify everyone’s [her classmates] projects as experiment pieces. During our first group critique, many of us were sort of shy or insecure about sculpture projects. And this also affected me to think that we’re not artists and what we created are not artworks because automatically I was comparing everyone’s insecure attitude to mature and mid-career artists.”

Unlike Molly’s earlier attitude that her peers’ work was not art, but just experiment pieces, she began to analyze her peers’ work with a different set of eyes. She started to appreciate Karen’s piece—which was composed of mixed media with digital components—as a work of art. Towards to the end of the semester, when she was working on her final sculpture, my teaching notes indicate that she wanted a list of artists who incorporated the use of digital materials. After examining the artists’ work, she reflected her thoughts in the Weekly Journal:

“After looking and reading about what these artists who used digital materials in their process or part of the work, I felt like I now gained appreciation about different kinds of art forms. Sometimes, these digital tools weren’t just used as a procedural way or for efficiency, but it was used with a specific intention of the artist. And I’ve also somewhat experienced this myself too. Along with the making session

and learning about these artists, it has led me to a new idea of what I've considered my art to be or what I art could be.”

With her newly found and revised understanding of art, she researched different art made of digital materials and started to make personal connections in her artwork.

Conclusion

Following Eisner's (2002) claim about the need for research in art education, particularly “studies of teaching and learning” (p. 215) that aim to investigate and unfold various ways that educators might teach arts and how that might reveal the importance of arts in education, this qualitative study began as an exploration of transformative learning in studio pedagogy in higher education.

It examined whether hands-on artmaking in a sculpture class fostered transformative learning for five graduate students who had relatively little experience and knowledge of art. As Mezirow (2000) argues, transformative learning aspires to expand the pre-existing consciousness and assumptions of adult learners by transforming in their worldviews. Within the context of Anne's findings, it can be argued that transformative learning occurred to a great extent in three main areas: (1) transformation in her understanding of art itself, (2) transformation of her identity as an artist and learner, and (3) transformation of her approaches to artmaking.

I argue that intentionally designed sculpture curriculum offered students a series of transformations that challenged all participants' initial assumptions. However, much of the rational, logical, verbal, and textual paradigms still emphasize higher education and adult learning, while diminishing the importance of the artmaking itself, along with its and multidimensional and transformational significance. Hands-on artmaking is especially undervalued. The medium involves rich sensory stimuli such as touch and feel that can enhance and broaden the way we perceive our world. I suspect that transformative learning through hands-on artmaking is not just about learning to make “stuff,” but about stopping and taking a moment to re-think one's presumptions. It is focused on inviting other unknown possibilities for becoming more opened-minded, which helps one to accept and appreciate diverse perspectives. I believe such transforming processes foster and guide one's methodology of living and learning, which will make a more inclusive

world that is open to more inclusive and opened views. I suggest that more research investigating the importance of hands-on artmaking is needed to help adult learners experience transformation in higher education.

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