

Essay #2 for Re-Enact

Professor Heidi Nobles

ENWR 1510-015

28 October 2019

## Investigating the Effects of Studying Art on Problem Solving and Divergent Thinking

I grew up immersed in art and in love with creating it. Whether music or painting, I have always had a deep appreciation for art and its impacts on the human experience. Unsurprisingly, that love for art sparked my interest when choosing a topic I wanted to research for this experiment. After having to scramble for a new topic when told by my group that my initial idea was “too controversial” in a collegiate setting, I thought of the following question on the couch in the living room of a fraternity house while my friends were getting tutored in biology and I was listening to them try, unsuccessfully, to solve a problem, staring at a destroyed art textbook in the corner of the room: How does studying art impact the way a person solves problems? From there, I broke the question down more, investigating how studying art affects a) the speed by which someone solves a problem and b) the process by which they solve it. Specifically, I was interested in seeing how people react differently when shown different styles of art.

### Peer-Reviewed Article #1

I started my project with an article titled “The Relationships between Creative Cognition and Problem Solving” that really challenged the way I thought about art and thinking (Arslan, Serhat, et al.). Overall, the main idea was that the human brain views dreams the same way that it views works of art, which I thought was super interesting, but also strange. There was a lot in this piece that I didn't understand, but my main take-away was that art is not just a physical

entity but also a biological one, leading me to approach my research with the question: "How does creativity spurn from studying art?"

### **Peer-Reviewed Article #2**

The second thing I read on this topic was an article by Simone Ritter and Sam Ferguson on "Happy Creativity" and the impacts of listening to happy music on divergent thinking. This was the first source that helped explain, mostly in terms that I, a non-STEM major can understand, a new idea on my topic. In summary, researchers played different kinds of music for participants and discovered that happy music positively increased arousal in people, which in turn made them more likely to make creative choices, as this increase in arousal led to an increase in persistence and flexibility of the brain. From that, I wondered if visual art had similar effects on the brain, as the majority of my research and studies were focused on visual art. However, this article allowed me to conclude that, if divergent thinking helps facilitate creative problem solving, and an increase in positive arousal facilitates divergent thinking, then happy art can facilitate creative problem solving.

### **Newspaper Article**

I chose this article because I saw that it was written by Eric Kandel, a nobel-prize winning neuroscientist who also wrote another book I used when researching this topic. Reading through it, I learned that lots of researchers believe that the way the brain physically interprets a piece of art is what gives it meaning to the viewer, and the steps it takes to formulate meaning shows how it uses art like it solves problems. I pulled the quote, "the brain is a creativity machine, which obtains incomplete information from the outside world and completes it" because it really stood out to me as a definitive way that I could relate the article to my overall

research question, as it shows how the brain interprets meaning from art and uses it as a part of a solution to overall problems.

### **Institutional Report (Newspaper Article #2)**

This report from the American Psychological Association discusses a lot of the criticism and features that accompany abstract art (Weir). Overwhelmingly, the piece states that the brain is wired to detect order, exemplified by a study where people were shown pieces of abstract art done by either a child or monkey and a professional abstract artist -- almost every person chose the one done by the professional artist. This allowed me to reason that though things learned in art classes aren't directly transferable to other areas like math or science, the processes the brain uses to study art are parallel to those in logical reasoning, meaning that studying art can help strengthen these brain processes for later.

### **Book #1**

Once I started getting into things more, I started looking into books. As I changed my topic after visiting the library in class, I used ebook copies of both books since getting to the library on such short notice was difficult for me. The first book I used was by renowned author and neurologist Eric Kandel, titled *Reductionism in Art and Problem Solving: Bridging the Two Cultures*. I used a lot of the diagrams in the book, as they really helped me understand a lot of the scientific language in the book; however, because I took biology and psychology, I also knew a lot of the terminology as well. What I mainly drew from this book was, given that abstract and impressionist art relies heavily on specific brain signaling to interpret meaning, it is logical to deduce that those who study these pieces of art have a higher chance at finding deeper understandings of the world and problems due to their heightened visual processes in the brain.

## **Interviewing an Expert**

I emailed my ARTH 2251 professor, Betsy Purvis, asking her a couple questions, hoping to gain a deeper understanding into the mind of a person who has dedicated her entire education to the study of art. From her, I learned that a lot of art delves into the human experience, and especially in early art, it is a way to communicate ideals and meaning across a different level of understanding. When asked if art has impacted the way she views the world or interacts with it, she said that it has given her a new understanding of the way that art has the ability to connect us cross-culturally and across many generations; furthermore, knowing the historical and cultural implications communicated through pieces of art has allowed her to become more sensitive to other cultures and have a deeper understanding of global cultural interactions. Her responses were really helpful for me, as they allowed me to see a different side to my question that I hadn't previously considered.

## **Empirical Experiment**

After I did the survey, I conducted an experiment, attempting to find correlations between my subject matter in a more personal study. I asked friends to study a randomly assigned piece of art for three minutes, taking notes on the things they noticed or thought were important. Then, I gave them a riddle, skipping if they already knew the answer, and timed how long it took them to find the answer. Once they solved the riddle, I had them write down a brief summary of how and why they were able to come to the conclusion that they did. Overwhelmingly, I noticed that those given art to study in any capacity solved the riddles much quicker than those given no art to study beforehand. Additionally, I noticed that the people who focused on the artistic techniques

that the artist used as opposed to the subject matter of the art, solved the problem slightly faster.

### **Archival Material**

I chose two pieces for my archival material, as I wanted one to be more scientific and the other more personal. The first was the papers I got from those who completed my experiment, which showed their process work and the reasoning behind their problem solving. I really liked being able to see the things they saw in the art, and how that impacted the way they approached the problems they were assigned. The second piece was a picture taken of me by photographer Chris Maher during my last performance during Drum Corps Internationals' semi-finals competition in Lucas Oil Stadium with the Colts Drum and Bugle Corps. I grew up playing music and loving art, and I wanted to include that picture because it helps to show that having art in your life can take you so many places that you could never have even dreamed. Doing drum corps has challenged me and helped me see things from many different points of view, and that directly correlates to the theme of the experiment.

### **Going Into Unit Three**

Ideally, I am going to use the title "How Creativity in Art Creates Creative Thinking," but knowing myself, I am going to make a few changes before I'm truly happy with it. As many of my sources pointed towards a positive correlation between the study of art and an increase in divergent thinking, I wanted to highlight that in my title, enhancing the idea of creativity I tried to examine in the study; furthermore, I will be shaping my paper around such ideas going into the third unit. With those ideas in mind, I will be starting my paper with a thesis as follows: "The study of art positively impacts the way a person processes and approaches problems, facilitating more divergent ways of thinking and problem-solving."

Word Count: 1813

## Works Cited

- ✓ Arslan, Serhat, et al. "The Relationships between Creative Cognition and Problem Solving." *Proceedings of the Multidisciplinary Academic Conference*, August 2013, pp. 83-89.
- ✓ Gazzaniga, Michael, organizer. *Learning, Arts, and the Brain: The Dana Consortium Report on Arts and Cognition*. Edited by, Asbury, Carolyn, and Barbara Rich, Dana Press, 2008, pp.
- ✓ Kandel, Eric R. *Reductionism in Art and Problem Solving: Bridging the Two Cultures*. Columbia University Press, 2016, pp. 110-119.
- ✓ ---. "What the Brain Can Tell Us About Art." *The New York Times*, 12. Apr. 2013.
- ✓ [REDACTED] "Art on Cognition Research Survey." SurveyMonkey, 14-15 Oct. 2019.
- ✓ ---. Photo of sheets written by participants of study during the experiment in October 2019. Photo taken 21 Oct. 2019, Charlottesville, VA.
- ✓ ---. Study of the effects of studying art styles on problem solving. Data collected via experiment, 21 Oct. 2019.
- ✓ Maher, Chris. Photo of Colts Drum and Bugle Corps performer in Lucas Oil Stadium during Semifinals. Photo taken 9 August 2019, Indianapolis, IN.
- ✓ Purvis, Betsy. Interview with author. Conducted via email, 21-27 Oct. 2019.
- ✓ Ritter, Simone M., and Sam Ferguson. "Happy Creativity: Listening to Happy Music Facilitates Divergent Thinking." *PLOS ONE*, vol. 12, no. 9, September 2017, ppl-14.
- ✓ Weir, Kirsten. "Probing the Power and Importance of Art." *The American Psychological Association*, vol. 50, no. 5, May 2019.