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Biological Anthropology

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Project Statement

For my essay, I wanted to explore the relationship between the human hand and the human ability to produce art. Though the human hand retains the same pentadactyl form of other primates, there are changes in the thumb and slight modifications in the fingers and palms that contribute to our ability to produce the very precise movements necessitated by some forms of art. I placed the hands front and central in this art piece, and I placed them in a dynamic position rather than just a standard handprint to signify their active participation in the creation of art. Rather than painting or drawing the hands, I deconstructed them to lines to signify the relatively simple relationship between them to the hands of other primates. Using embroidery floss also provided another opportunity to demonstrate a technique that required precise movement, and I felt that the flow and softness of the string added another dimension of dynamicity. The patterned chains down the sides and the three-dimensional circles I made using a knotting style that I learned as a young child to make bracelets, but I have since adapted it to different art projects. I used a zig-zag pattern down the sides because it is thought to be one of the older patterns that developed in art (Morris-Kay). The knotting technique was important because it requires prolonged precise movement that necessitates grasping and manipulating very thin thread. Overall, I wanted the hands to be the focal point with the capabilities of the hand demonstrated in the periphery.

The reason I chose this topic is because I was curious about the human ability to produce very fine movement. As I began to look into this, I found a very old article from the 1950s

(Alpenfels) that described the relationship between the evolution of the human hand and the freedom it gave us to express the fruits of our expanded cognitive abilities. Though the information was outdated, the language struck me and I began to look deeper into the specific adaptations of the human hand and how this might be related to our ability to create symbolic art. Specifically looking at the chimpanzee hand, it has elongated fingers, metacarpal, and carpal bones, and the thumb is relatively weak and less immobile. Human fingers, but not those of chimpanzees, have apical tufts, which support fatty pads that distribute force during grasping and accommodate uneven surfaces. While chimpanzees have robust metacarpals as it relates to knuckle walking, robustness and strength in human hands is shifted towards the thumb, which has expanded muscular control. These modifications led to increased precision and increased ability to apply force (Young). It is important to note that the chimpanzee is not a model for all ancient hominin hands, it is a useful method of comparison as there is weak representation of hands in the fossil record (Almécija). The way this adaptation relates to the visual arts is through the fact that both precise control of the fingers and symbolic thought both relate to human's expanded cognition. The ability to create artistic representations of something from the imagination requires a level of perception indicative of higher cortical function, and the ability to create patterns require complex planning and intention (Morris-Kay).

To actually create the artwork, I used mostly embroidery floss adhered to canvas with fabric glue. I sketched the hands onto the canvas and then went along and glued the floss accordingly. I tried to keep all of the floss as continuous as possible. I then created the two side chains using a four string pattern. Then I used the same knotting technique with only two strings to create the outside of the circles that are done with floss. Finally, I added in more detail with markers to reduce the amount of negative space.

Sources

Almécija, Sergio, et al. “The Evolution of Human and Ape Hand Proportions.” *Nature News*, Nature Publishing Group, 14 July 2015, https://www.nature.com/articles/ncomms8717#citeas.

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Morriss-Kay, Gillian M. “The Evolution of Human Artistic Creativity.” *Journal of Anatomy*, Blackwell Science Inc, Feb. 2010, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2815939/.

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Self-Reflection

From this project, I learned not only far more detail about the muscles of the human thumb than I ever intended to know, but I also learned to appreciate the skills of my hands as I worked on the artistic elements of the project. I learned about my own ability to express a creative idea and my ability to create an anatomical likeness. I also learned about the challenges that come with studying the morphology of the hand and trying to understand the evolution of it. The hands are poorly represented in the fossil record as the bones are thin and small, and extant primates do not provide an exact model of what ancient hominid hands might have looked like. Finally, I also learned that while it seemed a logical connection to me to connect the hands and art, there was surprisingly very little specific writing on this topic. I found myself having to make logical connections myself between the two topics.

One of the challenges I faced during this project was, as I mentioned above, the lack of specific information and the need to make logical connections for myself on the subject matter. This I dealt with by trying to find robust and detailed articles on art and the human hand, and then searching for subjects that occurred in both topics and seeing if those could be a plausible link between the two. Luckily, I found one in the expansion of cortical function. Another challenge I faced was that which is commonly faced in art- never being satisfied with what you have created. The permanent glue and finite amount of string I had available prevented me from altering too much, but I really had to step back from it once in a while to process what I have done. I also had some very kind input from my roommates that encouraged me to keep going with it.

Overall, I think the final product was successful. I am really proud of how the hands turned out and how they were the true focal point of the piece. I am proud of the amount of

strings I was able to knot relatively quickly, though it greatly fatigued my fingers (just another example of how the expanded muscles of our thumbs are necessary for this kind of art!). Though I think it is more of an artistic representation, and the concept might require some explanation, I do believe that it is still successful because of the way it highlights the hands, and I think that it leaves enough mystery where people would want to know what it was about.

In terms of what I think I could have done better, I am not happy with the work I did with the marker on the canvas. I rushed it some, and so it smudged and was not as clean as I would have liked. The black border also caused the side chains to blend in rather than stand out, so I wish I had considered that prior. I think that I could have made the concept more clear in the design if I had planned out the entire canvas beforehand, but admittedly I completed the hands before planning out the rest of it. I am happy with the topic I chose, though I feel like it could have used more research to further flesh out the connection I made. I focused my research on the hands and then art, and found the connection of cognitive function, but I did not specifically research cognitive function as it relates to those topics. I feel as though that would have strengthened the connection.