A Cognitive Approach to the Subjectivity of Aesthetics

Abstract

Aesthetics is a branch of philosophy that studies the nature of beauty, particularly the interpretation of art (Scruton & Munro, 2019). There are many psychological components that are involved with aesthetics, including the mental processes that the artist goes through to create works of art and mental processes the perceiver goes through when viewing art. One aspect of the perceiver is the phenomenon of subjectivity. Subjectivity is the distinction of your taste of art independent of other perspectives, but may be built off of them. It is what you are attracted to and what you find beautiful. In this paper, the subjective nature of aesthetics is explored through dimensions of cognitive science. By taking into account psychological, philosophical, and neuroscientific factors, the emergence of subjectivity is attempted to be pinpointed. Aspects of aesthetics that we discuss include the Aesthetic Experience, the Aesthetic Object, 8 Laws of Artistic Experience, Beholder's Involvement, Attention, Neuroaesthetics, and Modern Technology's impact on Aesthetics.

Introduction

Aesthetics is a branch of philosophy that studies the nature of beauty, particularly the interpretation of art (Scruton & Munro, 2019). There are many psychological components that are involved with aesthetics, including the mental processes that the artist goes through to create works of art and mental processes the perceiver goes through when viewing art. One aspect of the perceiver is the phenomenon of subjectivity. Subjectivity is the distinction of your taste of art independent of other perspectives, but may be built off of them. It is what you are attracted to and what you find beautiful. There is still no clear answer as to what constitutes subjectivity in the realm of aesthetics, therefore what I am trying to achieve with this paper is to explore and discover the degree to which cognitive science can explain the subjectivity of aesthetics on a physical basis as well as psychological in order to help my reader understand their own minds better with respect to how they react consciously and subconsciously to visual stimuli.

This is a controversial topic because the underlying mechanisms that cause subjectivity are still unknown. For years, many philosophers, psychologists, and neuroscientists have pondered about this and have come up with their own suggestions on where subjectivity comes from, but have not concluded on a definite answer. This discontinuity of aesthetic subjectivity dates back all the way to the seventeen hundreds in which philosophers like Emanuel Kant have contemplated the topic. An object's beauty is only instantiated when the viewer takes the presentation of it within themselves, proving they have a pure judgement of taste (Kant 1790). The main focus of the aesthetic experience has shifted from philosophically heavy views in earlier times to more physical explanations in more modern times due to changes in technology and available mediums (Crary, 2001).

Exploring the subjectivity of aesthetics through the perceiver of art, the object, and experience can be beneficial in unlocking the mysteries of the mind. Perception is a core element of consciousness that is different within every agent in the context of art, therefore studying it can help understand this mechanism of the brain in depth. The perceptual and emotional involvement of the viewer is integral in adding meaning to art by interpreting it in a personal way, known as the "beholder's involvement" (Kandel, 2016).

Perception is represented structurally in the brain and can show signs of activity in events of aesthetic experience. Subjectivity may be explained by the physical structure of the brain as shown by various experiments paying attention to neural activity when viewing artwork (Kawabata & Zeki, 2004). Some views go all the way to suggest that not only subjectivity, but *all* human functions can be explained neurologically (Zeki, 2002). More specifically there is a field of neuroaesthetics exploring just the physical aspect of the aesthetic experience. Explanations are traditionally psychological, physical, or philosophical, but some unique perspectives have surfaced as well.

Just like there is a universal grammar for language put forth by Chomsky, there may as well be some sort of "universal grammar" in terms of aesthetics (Ramachandran & Rogers-Ramachandran, 2006). They suggest a set of "laws" that govern how we innately perceive art. Some of which are grouping, symmetry, hypernormal stimuli, peak shift, isolation, and perceptual problem solving. These are considered the 8 laws of artistic experience (Ramachandran & Hirstein, 1999).

By doing experiments to track eye movement and attention when viewing an online interface, clues can be revealed as to what characteristics grab the viewers' attention. This can then be translated over to artistic compositions, because the organization of an interface is art within itself (Coursaris & Osch, 2016). Color and spatial proportions are some characteristics that information systems share with real works of art that elicit psychological responses. These approaches are only scratching the surface to what lies beneath the aesthetic experience of subjectivity. An actual explanation may not come in our lifetime, but there's no way of knowing for sure until you try. Putting effort into the study of perception of aesthetics is worth it because there are aspects of cognition that play a role in perception that can be monitored and have been monitored. It may not lead to a definite answer, but pieces can be put into place along the way that show interesting data. It is possible to come to a conclusion eventually by chipping away at it slowly.

The Aesthetic Experience

The aesthetic experience incorporates the viewer of art and the actual artwork itself, otherwise known as the aesthetic object. The experience is what happens to the viewer internally that is elicited by the work of art. By studying the aesthetic experience we can see more in depth what the reasoning is behind engaging with art, studying it, and adding to it (Scruton & Munro, 2019). This relates to humans because it is what separates us from beasts (Scruton & Munro, 2019). Being able to form an opinion brought on by a feeling is something that humans are able to do that animals cannot.

We have a need to understand the value of aesthetics. The right to have judgement of an object arises from the experience of viewing it, therefore anything that changes the experience you are having changes the aesthetic significance of it as well (Scruton & Munro, 2019). Kant views aesthetic judgement being "free of concepts" and only arising from experience and never conceptual thought. This coincides with the view that beauty is not a concept. "In other words, true aesthetic interest is <u>autonomous</u>, standing outside the current of ordinary human feeling—an attitude of pure contemplation or pure "intuition" that isolates its object from the stream of common events and perceives it in its uniqueness, detached, unexplained, and inexplicable" (Scruton & Munro, 2019). This is saying that the feelings that are inhabited in us upon viewing art are out of our control, and only these feelings evoke deep thought behind an aesthetic object that is different than ordinary objects.

With the introduction of other forms of art like video and web-art or graphic design, more information-processing is required in the critique of art (Leder, Belke, Oeberst, Augustin, 2004). Modern art strongly opposes styles of traditional art, but is still considered art nonetheless. With a better understanding of art, a more pleasurable experience usually follows. A visual representation of what is actually depicted is not substantial enough to construct a valid understanding of the art (Leder, Belke, Oeberst, Augustin, 2004). This is a highlight of the top-down processing influences of the aesthetic experience. This is a manifestation of perception through cognition, meaning what you know previously and expect to perceive will guide your actual real-time perception. "Top-down information places the image into a personal psychological context, thereby conveying different meanings about it to different people" (Gilbert 2013; Albright 2013). When viewing art, we are challenged with the task of classifying and cognitively understanding it. This process is the aesthetic experience (Leder, Belke, Oeberst, Augustin, 2004). This process gives rise to aesthetic emotion that motivates future interest in pataking in the challenge of understanding art.

A Model of Aesthetic Appreciation and Aesthetic Judgments proposes a model containing five stages that we take part in when having an aesthetic experience (Leder, Belke, Oeberst, Augustin, 2004). These stages are perception, explicit classification, implicit classification, cognitive mastering and evaluation. This paper claims that there is no scientific explanation for aesthetics and tries to approach it from a psychological standpoint. The model tries to replicate our need for meaning when it comes to art. There are challenges involved when viewing art and result in two different outputs of aesthetic emotion and aesthetic judgement.

This model is an information-processing approach to the modern appreciation of art (Leder, Belke, Oeberst, Augustin, 2004). In the context of a museum, there are aesthetic objects all around. This paves the way for both an emotional affective state, requiring no cognition, and the cognitive processing stages. First there is a perceptual analysis that deals with the physical features of the art. This could be the complexity, contrast, symmetry, order, and grouping. These variations are stemming from the 8 laws of artistic experience (Ramachandran & Hirstein1999). This leads to implicit memory integration, or unconscious procedural memory, drawing from previous experience.

Next is explicit classification, where you use your declarative knowledge, interest, and personal taste to classify the style and content of the art. Following this is cognitive mastering, which is your interpretation of the art in an art-specific way and self-related way, building off of the previous stages. Finally we reach the evaluation stage where we come to an understanding of the ambiguity proposed by the art. Throughout these stages, there is a continuous affective evaluation resulting in a satisfaction and leading to your ultimate aesthetic judgement and aesthetic emotion. Judgement is constructed by going through the stages and the emotion is a by-product of that process. By being equipped with judgement and emotion, you can take part in social interaction and discuss opinions with other people to eventually decide if the art is considered beautiful or not. This cycle repeats itself for other works of art and strengthens your ability to construct a viable judgement.

Susanne Langer is a semiotician that proposes views on the "minding" of art symbols. "Minding" is an aesthetic model that is the process of utilizing your mind instead of your mind merely being a substance. She relates feeling to art symbols from a semiotic point of view. She claims that our perception is the active feeling of artistic signs. In this feeling-based approach, the structures of feeling are both accessed and *exemplified* in *paradigmatic*, though not exclusive, form in the rise of the art symbol. "The art symbol, in whatever mode, is an objectified *pregnant image*. It displays the life of feeling, indeed the 'morphological logic' of feeling, in objective form ...Feelings, quite generally and in whatever form or gradation, are signs of mind, or minding, and mind is made manifest in 'feeling signs' or the 'signs of feeling--the ambiguity is deliberate," (note S4A).

Langer goes on to explain what characterizes of an art symbol differ from an object. The image symbolizes the object by abstracting its phenomenal character and presenting its magnitude of strength or importance, strength or fragility, permanence or transience. It organizes and enhances its impression that has an immediate effect to our senses. She states that most of our awareness of the world is a continuous play of impressions. Our primitive intelligence is largely equipped with images and we apprehend every impact we directly receive from the world by imposing some image on it that stresses its salient features and shapes it for recognition and memory (note S4B).

The Aesthetic Object

It is hard to say what actually constitutes as an aesthetic object. It is ambiguous, and could be considered as a work of art, and may include other objects of the like. Art is a general term that acts as an umbrella that covers many forms, be it painting, drama, poetry, sculpture, music, dance, architecture, landscapes, or faces, because they are claimed to be seen as art. These are considered aesthetic objects because they are a special class of objects in the world that we react to selectively in aesthetic terms (Scruton & Munro, 2019). The aesthetic object is one component of the aesthetic experience, which would be incomplete without it.

The aesthetic object has a material form and intentional form (Scruton & Munro, 2019). The material form of the object means the actual physical existence of the object and is objective, and the intentional form is what you conceive of the meaning of the object to be, or what it represents within you. The material form of the aesthetic object is most varied and least common because it accounts for all types of art. The kind of beauty we find in poetry is different than that we see in architecture. The intentional form is subjective to the viewer and depends on our conception of the object. Features that we may consider beautiful in a human figure differ drastically from beautiful features of a horse; an idea of function seems to govern our perception (Scruton & Munro, 2019).

Another form of an aesthetic object is within natural beauty, those that occur naturally without reference to art. This can be found in nature, or in our own human figure of bodily composition and face. Feelings toward nature increased during the Romantic movement in the eighteenth century, which idolized nature in a new light (Scruton & Munro, 2019). The romantic movement sought after preserving nature and national parks in the US because of the recognition of natural beauty. Naturally occuring beauty has simple features like repetition that can be found in Lindenmayer Systems to generate fractals. Fractals appear naturally in snowflakes and fern leaves among many more, attracting the eye of the observer.

Ingarden articulates the relation between an object and the aesthetic experience and the contributions it makes. He proposes that there is a difference between ordinary objects and experiences and aesthetic objects and experiences and what constitutes them as such (Ingarden, 1961). We have the ability to perceive the reality of all ordinary objects, but to make them aesthetic, additional cognitive processing must be done. The context of the object and moment in time contributes to the aesthetic nature of the object (Ingarden, 1961). He claims that we are not limited to the reality of the object, but other qualities of the object are the source and the object of the aesthetic experience (note 12A). We take into consideration the context in which the object is situated.

The point being made is that when an object is in the specific context of being a work of art situated in a museum, on a pedestal, in a frame, it assumes the role of being aesthetic. The room and lighting and context all contribute to the aesthetic experience, with the aesthetic object being the root of it all. A statue of a woman differs drastically from an actual woman and incorporates features that would be shocking on a real woman. For example, the statue "Venus of Milo" is made of stone and is missing arms. The way we appreciate the texture and gradient colors of stone is different in that of the real object, or real woman. We don't overreact to the statue having missing arms as to the way we would if a real woman was missing arms because we realize it is an inanimate object. The missing arms contribute to the simplistic figure of the overall statue and symmetry. The real object only serves as a starting point and basis for the aesthetic object to be built and perceiving subject being assumed. The aesthetic

experience is not one single point in time, it is a string of experiences connected to each other (note 12B).

Subjectivity

Reductionism is an artistic style that encompasses other art movements like abstract art, rejective art, and minimalism. In the book, Reductionism in Art and Brain Science: Bridging the Two Cultures, Eric Kandel tries to use this style and psychological principles to describe the subjectivity of art in a viewer. This point is centralized around the viewer's experience, and he asks the question, "can any aspect of art, which is a creative and subjective experience, be studied objectively?" Looking at art in a different light can bring out new discoveries that wouldn't have found otherwise. This is relative to my paper because it gives a suggestion that could possibly solve my problem.

Reductionism refers to the isolation of a sole feature in a composition that allows viewers to perceive an essential component of the work (Kandel, 2016). This could be line, form, color, or light. The simplicity of just one component leaves room for the viewer to play with their imagination in a way that a complex image might not allow.

This stimulation might make unexpected connections between our perception of the world through the art and our own memories of past experiences. In the inferior temporal cortex, visual associations are developed. This part of the brain interacts with the hippocampus, which is responsible for the deliberate recall of memories. These regions of the brain exchange information with the amygdala to generate emotion by processing information about color and faces (Kandel, 2016).

Subjectivity is contrasted with objectivity. In a philosophical context, Socrates defines subjective beauty as objects that are only beautiful for the person who makes use of it and objective beauty as objects that are only beautiful by themselves (note S2A).

8 Laws of Artistic Experience

Ramachandran is a neuroscientist that proposes 8 laws in The Science of Art: A Neurological Theory of Aesthetic Experience. The authors construct "8 Laws of Artistic Experience" that describe the heuristics that we take part in consciously and subconsciously when we view art. These laws include grouping, symmetry, peak shift, isolation, contrast, perceptual problem solving, hypernormal stimuli, and visual metaphors (Ramachandran & Hirstein, 1999). They claim that these might be some sort of set of universal rules that pertains to art like there is a universal grammar in language, instantiated by Chomsky (Ramachandran & Rogers-Ramachandran, 2006) (note 1A). There are factors of art that vary across different cultures and may be influenced by how the artist is raised, but there may also be a genetically specified mechanism that is a common denominator underlying all types of art.

Grouping is one of the 8 Laws of Artistic Experience. Grouping is taking a salient chunk of features that are bounded, or an object, of the image and sending that visual information to the limbic centers to be held on to for further computation later. Physiological evidence shows that the action of grouping leads to the synchronization of action potentials of neurons that extract those features that are grouped, and it is speculated that this synchrony allows for the signal to be sent to the limbic pathways (note P1D). Along with grouping, there is an action of binding. This refers to tying correlated features together to create unitary objects in the composition. This is seen to be a reinforcement tactic to provide incentive for discovering correlations for us (note P1C).

Symmetry is one of the 8 laws of artistic experience and takes the form of proportional and equal parts mirroring each other across an axis. It is evident that symmetry is innately pleasing to us for evolutionary reasons and is extracted in a very early stage of visual processing. It has been seen biologically that predators, prey, and mates are symmetrically formed, therefore sensing symmetry could serve as an early-warning system to grab attention in case of a predator until the entity in question is fully recognized, or letting predators know prey is nearby. These are survival tactics of organisms that use symmetry to their advantage. Along with the other principles, this is an interesting feature that can also be seen when humans and animals are choosing a mate. We tend to prefer a mate that has more symmetrical features than not. A parasitic infestation can be indicated by asymmetrical growth and development, and is detrimental to reproduction, therefore leading to the symmetrical preference of mates (pg. 27 Ramachandran & Hirstein, 1999). Because of these survival and developmental factors, symmetry is one of the 8 laws of artistic experience.

Peak shift is an interesting law of the artistic experience because it is a principle in animal discrimination learning. Peak shift is the exaggeration of features on a figure to amplify it. These amplified features are considered as a 'super-stimulus.' Capturing the essence of something to evoke a specific mood is to convey the "rasa," coined by Hindu artists. The peak shift principle captures the essence of the figure it appears on. This is an evolutionary adaptation that can be seen in nature as well. Seagull chicks peck at their mother's beak to notify them when they're hungry. When a brown stick with a red dot at the end replaces the mother's beak, the chick's peaking continues despite it being disembodied. Furthermore, when the length of the resembling stick is elongated unnaturally and has three dots instead of one at the end, even more vigorous pecking occurs. This phenomenon was discovered by Tinbergen (1954) and is a trigger feature, meaning the chicks are only concerned with this stimulus and the fact that there isn't a body with the "beak" doesn't affect their perception of it. (pg 19) This is a super stimulus and has the same attraction synonymous with that of a Picasso painting. It is unknown what type of super stimulus excite humans' visual neurons better in art than in real life like the color memories of sunflowers or lillies. The peak shift effect is effective in modern art because it is exaggerating ordinary features we have seen before and understand from previous art movements, making us appreciate it more.

Isolation is breaking a composition up into modalities that can be processed individually. Modalities refer to the components of a composition, like form, line, and color. Sketches featuring only isolated markings of line are just as effective as a full color painting. There are constraints on attention that isolating one aspect like form or depth allows you to direct your attention on one source of information. This amplifies only the minimal necessities to capture the essence of the image to send recognition signals to the limbic system. (p.24 Ramachandran & Hirstein, 1999). According to physiologist Zeki (1998), the act of isolating the essential features of an image and discard redundant information is what our visual processors have evolved to do, and what we aim to do computationally in replicating cognition (note P1B).

Contrast exists in the regions of change of the composition like edges. Contrast is attention grabbing and is more interesting than homogenous areas. These regions of change are extracted autonomously by our visual perception cells in the earliest stages of processing and is

considered a type of reward system when these are detected. If our cells find these regions interesting, then that would indicate that, we, as a conscious whole, would find it interesting, ultimately translating to pleasing (note P1E).

Metaphors have always been made in art and are a prime principle of the artistic experience. It is a strange phenomenon how these visual puns are rewarding to us. Connections are commonly made between positive attributes of nature and attributes of humans. An example of this is Shakespeare comparing Juliet to the sun because they are both have radiance and warmth. One possibility is it highlights the crucial aspects of the subject that the artist is trying to convey primarily to the viewer while ignoring irrelevant common aspects. Having radiance and warmth is notably better to be known for rather than for something ordinary like your fingernails. Sometimes emotions are elicited before the metaphor is even made apparent, so the metaphor might have an effect on us unconsciously (pg. 31). Finding metaphors in art improve our understanding of it and ultimately increase our attraction to it.

Beholder's Involvement

An aspect of subjectivity is known as the "Beholder's Involvement." This term was coined by Reigl to signify that the perceptual and emotional involvement of the viewer completes the art. We see a two dimensional image and transform it into a three dimensional depiction of our world by adding personal meaning to it through interpretation (Kandel, 2016).

Art historians and art critics' interpretations of art have differing but prominent roles in the beholder's involvement. Historians try to connect a meaning to the art in the context of social and cultural spheres and critics develop a sense of value of the art. The analysis of art is a subjective process that changes depending on what you are trying to gain from the experience. A Historian, Panofsky, considered artwork as a direct result of the surrounding culture at the time it was made and the concrete tendencies of the human mind. He attempted to solve the hermeneutical problem by proposing both of these origins of art (P11A). Historians form objective interpretations while critics form more subjective interpretations that pay attention to artistic values. These values are aesthetic, cognitive, and moral.

Attention

Attention plays a role in the subjectivity of aesthetics. This is studied in an experiment that uses a Cognitive-Affective Model of Perceived User Satisfaction (CAMPUS). This deals with perceiving information systems and the cognitive dimensions it affects. This has relevance to my research because information systems can be considered as a medium of art and deal with the same logistics. Color and spatial proportions are some characteristics that they share with real works of art that still elicit psychological responses. These features of design are examined by people's assessment of aesthetics and ease-of-use of websites (Coursaris & Osch, 2016).

It was found in this study that color is one of the most significant factors in the design of a website. "Colour information, such as hue, brightness, saturation, and temperature, is instantaneously perceived by users and therefore has a significant, immediate impact on our perceptions, emotional reactions, attitudes, and behavioural intentions towards IS" (Coursaris & Osch, 2016). Color is determined to be a significant dimension of design because it is immediately perceived and directly influences the nervous system and stimulates aesthetic responses in the brain (Coursaris & Osch, 2016). This relation of color and aesthetics is innate

within humans despite some variation in responses. Carefully established color schemes like cool colors (blue, purple, and green) or warm colors (red, orange, and yellow) can affect mood in a similar specific manner.

In the experiment, users were asked to explore the website of a hotel and book a room. User satisfaction was measured across websites that used various colors, design, and form (Coursaris & Osch, 2016). Clarity and orderliness, or classical aesthetics, affected user satisfaction the most, followed by effectiveness of the website, efficiency, and then playfulness. Playfulness was considered to be the expressive aesthetics, or originality and creativity. A higher satisfaction rate is correlated to simplicity and organization. Websites are a form of art, therefore these same principles can be mapped to other forms of art like paintings and sculptures.

Another aspect that goes into assessment of processing aesthetics is fluency theory. This theory explains the relationship between classical aesthetics and expressive aesthetics. Classical aesthetics deals with orderliness and clarity while expressive aesthetics deals with originality and creativity (Coursaris & Osch, 2016). The easier it is to perceive or process visual stimuli in a website, the fluent it is and leaves the user with a more positive experience. Simplicity attributes to fluency theory. Overall, aesthetic pleasure is a function of a user's processing dynamics (Coursaris & Osch, 2016). Judgments of perception happen almost instantaneously. It only takes 50 milliseconds to conceive a judgement of stimuli, concluding that not much cognitive responses are at work (Coursaris & Osch, 2016). This involves more affective processes and shows we are more heavily reliant on initial perception to determine moods and feelings. Attention can be monitored by tracking eye movements. By seeing where the eye is situated on a work of art and what path it follows can give insights as to what we are aesthetically attracted to. By seeing where viewers' attention is directed can support general facts of the pattern of perception. Certain characteristics of the picture effect where this attention is focused. Differences in the viewer also affect the subjectivity of their experience like age and nationality. Taking an objective approach to perception can attempt to justify subjective patterns of perception (note P14A). "Eye movements are unconscious adjustments to the demands of attention during a visual experience," (pg. 9 Bushwell 1935). When we visual process an image, our eyes don't move smoothly, they saccade and pause quickly.

Arnheim clarifies what constitutes as art through aspects like shape, form, dynamics, and expression. He notes on how we use our eyes as instruments to detect and measure objects in the world using these features, but there is more going on in the aesthetic experience past vision. We gain an understanding of art through this process. Gestalt psychology states that the whole of something is greater than its parts. This study shows that art is made up of characteristics that demand we perceive them appropriately. Reality can be conceived of either adequately or inadequately due to this objective element in experience. Adequately, reality has a common core of truth that is the same for all humans. This means that a line will be perceived as the same figure and shape by all observers of it regardless of their personal associations they make to it from previous experiences. This is a level base of objective validity that unbounded subjectivism builds from (note P13A).

It is human nature to define and understand what we see. "By making visual categories explicit, by extracting underlying principles, and by showing structural relations at

work, this survey of formal mechanisms aims not to replace spontaneous intuition but to sharpen it, to shore it up, and to make its elements communicable," (note P13B). When we don't understand what we see and the visual statement is ambiguous, it interferes with the viewer's perceptual judgement. This is when subjective factors deploy like the focus of attention and preference of a particular direction. There is a search for more stable arrangements when this occurs (note P13C).

Neuroaesthetics

Aesthetics can be viewed from an evolutionary psychology standpoint. Dissanayake proposes the artification hypothesis, which is "the emergence of aesthetic capacities and sensitivities in the evolution of a universal biologically-essential behavior — coordinated interactions between human mothers and their immature infants that contributed to the survival of the latter and consequently to a mother's reproductive success" (Dissanayake, 2009). This states that having aesthetic judgement is a behavioral adaptation that humans gained from evolution and increased the survival rates in infants that interacted with their mothers. This mother-child emotional bond is developed by using proto-aesthetic operations unconsciously (Dissanayake, 2009). In a very early context, art does not have a contribution yet, but the proto-aesthetic operations act as a reservoir of capacities and sensitivities to be used in novel context like culturally-created ritual ceremonies. This results in artistic outcomes like music, dance, poetic language, and dramatic performances. These behaviors that originated in culturally religious ceremonies are unique to humans (Dissanayake, 2009).

The manipulations of aesthetic processes produce emotional effects at the end of temporal arts (Dissanayake, 2009). Temporal arts are the arts that take place over time, like music or dancing. The temporal arts best display the manipulation and expression of emotion. By playing with different movements in dance and different scales in music, different emotions are elicited throughout the performance of the art. Overtime, these emotions build up and become stronger. These manipulations attract attention, sustain interest, and create and mold emotion rather than have a symbolic effect (Dissanayake, 2009). Not all visual stimuli has to be representational, such as the earliest drawings of young children and earliest drawings on cave walls made by our ancestors. These markings are merely making ordinary surfaces extraordinary. Manipulating markings by formalizing, repeating, exaggerating and elaborating are aesthetic operations that transform ordinary objects even when they are not symbolic.

A study was conducted to see if certain areas of the brain are triggered when viewing particular works of art. The results show that there is brain activity in visual areas when shown works of art that are considered "beautiful" and "ugly". This article is relevant because along with psychological explanations of subjectivity in aesthetics, there are also neurological explanations that happen within us subconsciously. This study found that there are specific neural conditions induced by beauty and are enabled by brain structures (P3A). This means that the image must be processed by the area of the brain specialized for that category of work. There is also a mass of imaging data showing a direction association of specific feelings and emotional states with specific brain structures. It is shown that the orbito-frontal cortex and motor cortex has a correlation to the judgment of a painting. This brain structure is known to be engaged during the perception of rewarding stimuli (note P3B). The results also show that there was no notable brain structure accountable for judgements of stimuli perceived as ugly. There is only a change in relative activity in the orbito-frontal cortex that correlates with the judgment of beauty and ugliness (note P3C). In the motor cortex, ugly judgements produced greater activity than the beautiful judgements. With electrophysiological evidence, judgements of beauty and ugly don't take place in separate areas, but have relative changes of activity in the same areas. (note P3D). Beauty is seen as part of a continuum that represents a value attributed to it by the brain. This value differs between individuals and can change from one viewing to another. The value also correlates with the intensity of the activity of both beauty and ugliness in the same areas of the brain. It is apparent then that the modulation of activity in the shares areas of the brain correlates with the judgement of a stimulus (note P3E).

The term *neuroaesthetics* is proposed by Zeki who believes every human function can be explained with the physical structure of the brain. He attempts to explain the subjectivity of observing art in terms of tying the works of major classic artists to a primitive biological function of the brain, which is its capacity to form concepts. This is relative to my work by suggesting an explanation for the subjectivity of art in the neurological functions of the brain. "To understand the biological foundations of art, we must enquire into the biological foundations of knowledge, for art constitutes a form of knowledge; indeed is knowledge. We are still far from knowing the neural basis of the laws that dictate artistic creativity, achievement and appreciation, but spectacular advances in our knowledge of the visual brain allow us to make a beginning in trying to formulate neural laws of art and aesthetics; in short, to study neuroaesthetics," (note P4A). "Art is basically a by-product of this abstracting, concept-forming,

knowledge-acquiring system of the brain and can only be understood biologically in that context," (note P4B). Although brain systems differ in their functions, they are all engaged in abstraction and concept formation because of their involvement in the acquisition of knowledge, and because a similar neural process governs different ideals produced by the brain. We are not conscious of the neurological processes that underlie these abstractions because they are automatic, but we are aware of their results. Consider the physiological properties of visual neurons. They are specialized for specific orientation, detection of motion in specific directions, and specific colors. This makes it evident that abstraction is not a characteristic of higher areas of the brain, or limited to them, they are characteristic of early visual areas (note P4C).

Zeki defines art as the translation of concepts from an artist's mind onto a canvas, into music, or into literature. On a grander scale, great art is constituted as many different concepts in as many different brains over as long a period of time as possible. A thriving characteristic of great art is ambiguity because it can take the form of many different concepts. Along with unfinished works of art, they are both easy to understand because the observers can choose alternatives that best fit the brain concepts at any given time. (note P4D). Zeki also compares the neurological motive force for art with that of love. He proposes that romantic love also obeys a universal rule of brain activity, which is the formation of ideals that is a product of the brain's ability of abstraction. Both of these share the same trace of force to a necessary stage in the brain's quest to acquire knowledge (note P4E).

The Effect of Modern Technology on Aesthetics

There has been a discontinuity of aesthetic subjectivity dates back all the way to the seventeen hundreds in which philosophers like Emanuel Kant have contemplated the topic. An object's beauty is only instantiated when the viewer takes the presentation of it within themselves, proving they have a pure judgement of taste (Kant 1790). The main focus of the aesthetic experience has shifted from philosophically heavy views in earlier times to more physical explanations in more modern times due to changes in technology and available mediums (Crary, 2001). Kant's view of aesthetics is focused more on the imagination of the viewer rather than understanding of the aesthetic object. "If we wish to decide whether something is beautiful or not, we do not use understanding to refer the presentation to the object so as to give rise to cognition; rather, we use imagination (perhaps in connection with understanding) to refer the presentation to the subject and his feeling of pleasure or displeasure. Hence a judgment of taste is not a cognitive judgment and so is not a logical judgment but an aesthetic one, by which we mean a judgment whose determining basis cannot be other than subjective. But any reference of presentations, even of sensations, can be objective (in which case it signifies what is real [rather than formal] in an empirical presentation); excepted is a reference to the feeling of pleasure and displeasure this reference designates nothing whatsoever in the object, but here the subject feels himself, [namely] how he is affected by the presentation." (Kant 1790). He is saying that art is subjective because the meaning of it comes from our individual imagination and leads to the pleasure it brings us.

Kant continues to share his definition of the term "beautiful." He believes it's what you do with the presentation of an object within yourself separate of the object's existence that determines the beauty of it. To have a judgement of taste, you can't be biased of the object's

existence, but be indifferent about it (Kant 1790). Kant also states that a true judgment of beauty is developed socially by agreeing with others. Beauty is valid as long as it is agreeable among multiple people. This isn't a practical judgment about the object, it is taste of sense in regards of aesthetics or a taste of reflection. It describes the relation of the presentation of the object and the feeling of pleasure or displeasure in the viewer (Kant 1790). There has been a modernization of the ideas around perception of art from the 19th century. There is a history of views surrounding this topic, but this shows how fairly recent changes in technology and mediums have shaped the standard characterization of perception we have today.

Attention plays a big role in modern aesthetics. "Attention, as I will detail, was an inevitable ingredient of a subjective conception of vision: attention is the means by which an individual observer can transcend those subjective limitations and make perception its own, and attention is at the same time a means by which a perceiver becomes open to control and annexation by external agencies" (Crary, 2001). He is saying that attention is a way for the viewer to control their own subjective experience. He brings up the idea of autonomous vision, which has the condition of our perceptual and sensory experiences depending more so on the functioning of our sensory apparatus rather than the nature of an external stimulus (Crary, 2001). This also strays away from the need of perceptual experience being related to an exterior world. Modernization brought about a drastic increase in the amount of knowledge surrounding embodied agents and the possible ways vision can be subjected to external techniques of manipulation and stimulation (Crary, 2001). Being able to play around with the variables of vision gains insights on knowledge about subjectivity in visual stimuli.

Conclusion

There are many psychological components that are involved with aesthetics, including the mental processes that the artist goes through to create works of art and mental processes the perceiver goes through when viewing art. One aspect of the perceiver is the phenomenon of subjectivity. We have explored and discovered the degree to which cognitive science can explain the subjectivity of aesthetics on a physical basis as well as psychological in order to help my reader understand their own minds better with respect to how they react consciously and subconsciously to visual stimuli. We have discussed hypotheses proposed in areas of psychology, philosophy, and neuroscience. The emergence of subjectivity has attempted to be pinpointed by going over aspects of aesthetics that include the Aesthetic Experience, the Aesthetic Object, 8 Laws of Artistic Experience, Beholder's Involvement, Attention, Neuroaesthetics, and Modern Technology's impact on Aesthetics.

There is still no clear answer as to what constitutes subjectivity in the realm of aesthetics, but these approaches are just scratching the surface to what lies beneath the aesthetic experience. An actual explanation may not come in our lifetime, but there's no way of knowing for sure until you try. Putting effort into the study of perception of aesthetics is worth it because there are aspects of cognition that play a role in perception that can be monitored and have been monitored. It may not lead to a definite answer, but pieces can be put into place along the way that show interesting data. It is possible to come to a conclusion eventually by chipping away at it slowly.

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