

Psychological vs. Physical Vraisemblance in Caravaggio's Artwork

- An Examination of The Crucifixion of Saint Peter

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Abstract: This paper critically analyzes Caravaggio's The Crucifixion of Saint Peter through the lens of Gestalt psychology, highlighting the intricate relationship between perceived and physical realities in Renaissance art. Drawing on historical perspectives of design psychology from Aristotle and Plato to contemporary Gestalt principles, the study investigates how Caravaggio employs techniques such as scale distortion, chiaroscuro, and guiding forms to enhance emotional engagement and aesthetic experience. It reveals that the meaning of the artwork emerges from the dynamic interplay of its elements, shaped by both the artist's intent and the viewer's experiences. While the analysis is limited to a single artwork, it provides insights for future artists, suggesting that psychological constructs can effectively inform artistic problem-solving. The paper advocates for further research to compare Caravaggio's techniques with those of his contemporaries, enriching our understanding of perception manipulation in art.

Keywords: Psychological realism , Gestalt psychology, Caravaggio, Physical vraisemblance, Renaissance art.

1. Introduction

The Psychology of Design originated since Aristotle and Plato is commonly practiced in artistic creation by artists since the Renaissance [1]. Greek philosopher Epicurus stated that the soul and noema of man resides in the cardio of human flesh in the form of atom; while Plato argued that emotions are controlled by the soul, leading to the feelings such as aesthetic fulfillment. Design psychology today is generally used in a broad field of subjects including information technology, industrial design, and engineering. The application of design psychology to art problem-solving is a contemporary trend that allows artists to reflect on and gain inspiration from past masterpieces. Contemporary Gestalt psychologist Altmeyer found that people tend to understand the shapes and forms they see in relation to their emotions, memories, and past experiences. This cognitive process allows viewers to perceive an artwork not just as a collection of individual elements, but as an integrated whole where each object or form interacts with the others to create meaning [2]. Each element in a work of art functions independently, contributing its unique characteristics, yet these components are interconnected, influencing how the entire composition is perceived. The balance,

contrast, and harmony between these elements help evoke an emotional response, guiding the viewer's interpretation of the artwork's overall message or intention. This holistic approach emphasizes that the meaning of an artwork emerges from the dynamic relationships between its parts, shaped by both the artwork's structure and the personal experiences of the observer.

This paper will critically analyze Caravaggio's masterpiece *The Crucifixion of Saint Peter* from the perspective of Gestalt psychology. Through a critical review of design psychology, the perceived reality and physical reality in Renaissance artworks are analyzed to understand how Renaissance artists distorted physical reality to achieve aesthetic balance and perceived realism. Through a critical analysis of design psychology and the techniques and manipulation of the optic nerve, this study enables future artists to reflect on how psychological perceived reality replaces physical facts to solve artistic problems.

2. Analysis of Artistic Realism and Perceptual Illusion

2.1. The Intersection of Perceived and Physical Reality in Renaissance Art

The distinction between perceived reality and physical reality in Renaissance art has been a subject of scholarly debate for decades, as it touches upon how artists depicted the world versus how viewers interpreted those depictions. Physical reality refers to the actual, tangible objects and environments that exist in the material world, observable and measurable by scientific standards. During the Renaissance, advancements in perspective, anatomy, and proportion allowed artists to create highly accurate representations of physical reality, capturing the human form, architecture, and natural landscapes with remarkable precision [3]. However, perceived reality is different. It involves the way viewers interpret these representations based on their sensory perceptions, emotions, cultural context, and individual experiences. While Renaissance artists were focused on achieving lifelike depictions through techniques like linear perspective and chiaroscuro, what people saw or "perceived" when viewing these works was shaped by more than just the physical likeness of the scene [3]. Perceived reality incorporates subjective elements, such as how light and shadow evoke emotions, how figures within the painting are arranged to guide the viewer's attention, and how symbolic elements are interpreted through the lens of the viewer's own experiences and worldview.

This distinction between physical and perceived reality has led to ongoing discussions about the nature of art. Some argue that the "reality" of a painting lies not in its physical accuracy but in its ability to evoke emotional or intellectual responses, blurring the line between what is objectively present and what is subjectively experienced. During the Renaissance, this intersection of realism and perception transformed not only the practice of art but also its role as a medium for philosophical exploration, illustrating how closely intertwined physical depiction and human perception truly are.

2.2. Physical Reality and Perception through Gestalt Principles

Modern scholars contend that art is fundamentally an illusion of reality, a crafted representation that captures selective facets of truth rather than presenting the full scope of physical reality. From this standpoint, art serves as a medium for conveying subjective truths, emphasizing emotional or symbolic interpretations over the rigid, unchanging nature of the physical world [4]. Physical reality, governed by immutable laws of physics—such as gravity, motion, and the behavior of light—remains stable and constant. However, in art, these elements are manipulated to evoke specific emotional responses or to communicate deeper meanings. Studies have demonstrated that the human eye does not perceive the world strictly through objective, measurable light. Instead, people's eyes assess light and color based on exposure, environmental context, and past experiences [5]. This concept is mirrored in artistic techniques, particularly in how artists use light and shadow to create depth and focus. By strategically manipulating light, artists can emphasize certain parts of a painting or

sculpture, drawing the viewer's attention to key aspects of the work while subtly downplaying others. In this way, Gestalt principles, like the law of proximity or closure, help explain how art creates visual and emotional coherence. Just as viewers perceive grouped or incomplete forms as unified wholes, artists employ techniques like light and shadow to direct attention and shape perception [2]. For example, in Baroque art, the use of chiaroscuro—dramatic contrasts between light and dark—creates a heightened emotional intensity that may not be present in the physical arrangement of light but serves to deepen the viewer's emotional engagement with the subject matter [6]. Through these techniques, art transforms physical reality into a subjective experience, blending perception with imagination to convey complex emotional and symbolic messages.

3. Psychological Manipulation of Physical Reality in The Crucifixion of Saint Peter

3.1. The Crucifixion of Saint Peter

Michelangelo Merisi da Caravaggio) was a renowned Italian Baroque painter known for his dramatic use of light and shadow, as well as his realistic portrayal of human figures. His painting *The Crucifixion of Saint Peter*, created in 1601, depicts the martyrdom of Saint Peter, who was crucified upside down, a reference to his request to be crucified in this manner out of humility. The work captures the intense emotion of the scene through striking contrasts and a dramatic composition, showcasing Caravaggio's skill in conveying psychological depth and human vulnerability. This painting is considered a significant example of Baroque religious art and highlights Caravaggio's influence on the depiction of biblical narratives [7].

Caravaggio's works are often regarded as intensely realistic or naturalist by the naked eye. However, 3D Measurement and Analysis method, it is found that the space and perspective in the *Crucifixion of Saint Peter* is heavily distorted. The 3D model reconstruction shows that the height and scale of the character in the background is exaggerated while the character in the foreground is diminished. The scene is designed with a hill-like structure, as illustrated in Figure 1, to create a sense of stability.

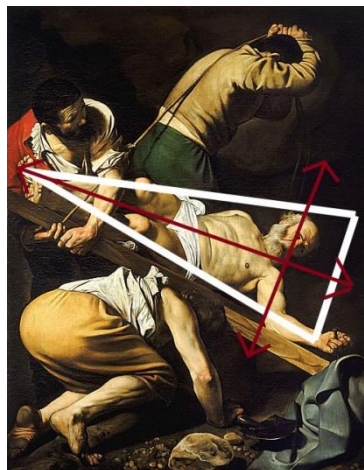


Figure 1: Guiding Form in the Cruix. of Saint Peter

An examination of the *Crucifixion of Saint Peter* based on experimental contemporary psychological theory of design offers explanation on the reason behind distortion of its physical reality. According to Vischer's aesthetic sympathy theory, elements of realism and baroque mannerism in Caravaggio's paintings generate emotional connections through projection. The distortion of scale and perspective enhances the characters' emotional resonance with viewers [8]. The aesthetic distance theory refers to the fictional distance between the viewer and the artistic objects

acting as the catalyzer of aesthetic beauty. An object in the artwork can be “under-distance” by locating too far away from perspective thus having little connection with viewers’ emotion; object could also be “over-distance” by locating too close with the viewers’ perspective thus becoming over involved with the narrative. In the Crucifixion of Saint Peter, Caravaggio distorts the scale and proportion of the characters in the foreground and background and mimics a golden-distance of approximately 5-meter distance with every character in the artwork to achieve psychological aesthetic beauty.

3.2. Analysis of Painting Techniques in The Crucifixion of Saint Peter

3.2.1. Guiding Form

Caravaggio uses guiding forms to manipulate scale and depth. In The Crucifixion of Saint Peter, Caravaggio expertly uses character contours to direct attention to the two executioners holding the crucifix. Each character has distinct guiding forms influenced by their poses, with the executioners’ angular shapes contrasting with the softer forms of other figures. This difference draws the viewer’s gaze toward them. Caravaggio also employs varying color saturation, with the executioners depicted in richer, more vibrant colors against the muted tones of the surrounding characters. This selective use of color emphasizes their roles and diminishes the viewer's perception of scale. When characters share similar attributes in guiding form and color, their spatial relationships become less defined, leading to a flattened sense of scale. The contours create visual pathways, guiding the eye toward the crucifix and enhancing the scene's urgency. These techniques foster a deeper emotional engagement, highlighting the drama and complexity of the narrative. In Gestalt Psychology, objects in an artwork with more similarities in terms of guiding form, color, and space are more likely to be scale-sensitive. While scale is a common element of art usually representing depth, Caravaggio uses guiding form to blend the sense feeling of depth in the artwork thus making the scene psychologically realistic.

3.2.2. Chiaroscuro

Caravaggio employs chiaroscuro to enhance spatial and volumetric perception. It is deeply fused into the Mannerism of Caravaggio as his paintings demonstrate theatrical lighting. Using the method of RGB level color reduction, lighting strengths Saint Peter and the character tipping the crucifix, while the character holding the rope seems equally bright as the lower character, he actually receives a tiny minority of the lighting in contrast. Caravaggio uses the distortion of light to cover the ambiguity of scale thus enhancing its realism.

In the physical world, light is emitted by the sun and it is reflected across objects; in other words, most objects are capable of reflecting light thus making circumstances of extreme contrast rare. However, in a theatrical circumstance, the dark atmosphere enables such extreme contrast and makes objects seem self-luminous. The chiaroscuro technique used by Caravaggio is to mimic a theatrical circumstance; as such setting and a side lighting complicates the structures of the characters and enhances the stereo effect. Psychological study shows that as the human eye sights an object with a front lighting, such object is perceived to be flat; however, as the lighting shifts sideways and creates a ladder of lighting intensity, the object becomes increasingly three-dimensional while also creating depth [6]. The presence of a neoclassical background also enhances the sense of depth based on lighting, as the background provides little to no information regarding the depth of space. The fuzziness of depth created by chiaroscuro distorts human vision and further diminishes the ambiguity of scale and space.

3.2.3. Composition

Human senses tend to evaluate “balanced” and “stable” composition as aesthetic. However, in the Crucifix of Saint Peter, Caravaggio captures a motional moment as the characters in the scene perform a certain action. As the principle of psychology of design was used in this painting, the composition of objects within the scene is carefully designed to balance the forces in the artwork. The presence and balance of force is a critical point whereas Caravaggio creates psychological vraisemblance. In the physical world, performing certain actions involving weightlifting involves the transmission of energy; such transmission of energy could be seen clearly in the Crucifixion of Saint Peter. According to the aesthetic sympathy theory, the presence of force enables the viewer to make emotional connections with the character within the scene further producing aesthetic fulfillment. However, the presence of force creates a sense of instability in the painting, as dynamic scenes are often perceived as aesthetically uncomfortable. To counterbalance these physical forces, Caravaggio distorts the perspective and scale of the objects in the composition. Scholars in the psychology of composition note that when an object nears the edge of an artwork, viewers tend to envision a psychological force, referred to as "Boundary Force," which seems to push the object back from the boundary. This technique helps create a sense of equilibrium within the artwork despite the underlying tension of the scene. Caravaggio achieves balance in this painting by positioning the contours of the characters close to the edges of the artwork. As the viewer's eye assesses the individual elements, the perceived boundaries create a push-back effect, helping to stabilize the dynamic forces within the composition. This interaction between the contours and boundaries contributes to a sense of aesthetic stability while managing the inherent motion of the scene.

3.2.4. Perspective

The perspective of the painting is considered emulational relative to the physical world. Performing an experiment of 3D reconstruction found that the foreground character is enlarged while the background character is diminished in terms of scale. In terms of the focal length of photography, a 50mm focal length camera would produce a perspective similar to the 3D reference. By estimating the actual size of the characters and calculation of physics formula, a hypothesis can be made by claiming the objects of the foreground of the painting were created with a different perspective, more specifically, a lower focal length than the middle and background to enhance the balance of the painting as an entirety. Caravaggio meticulously crafted the perspective angle in this scene to emphasize the superposition of objects and enhance the perception of depth. While each object possesses its own bidimensional quality, the use of an oblique perspective reveals their three-dimensional characteristics while preserving a linear perspective. This technique adds complexity, as the oblique view can obscure the perception of scale, making the viewer less aware of size differences. Consequently, the blending of these elements creates a dynamic spatial experience, allowing for a more immersive engagement with the artwork.

4. Conclusion

In conclusion, the application of Gestalt psychology to Caravaggio's The Crucifixion of Saint Peter reveals profound insights into the interplay between perceived and physical realities in Renaissance art. By examining how Caravaggio skillfully distorts scale, employs chiaroscuro, and utilizes guiding forms within his composition, this paper uncovers the underlying psychological mechanisms that enhance emotional engagement and aesthetic experience. This study emphasizes that art is not merely a reflection of reality but rather an intricate construction that manipulates viewer perception to evoke specific emotional responses. Through techniques that challenge the viewer's sensory expectations, Caravaggio transcends mere representation, inviting a deeper contemplation of the human experience.

Ultimately, the findings suggest that the legacy of Renaissance art, as demonstrated by Caravaggio, continues to resonate today, influencing both the theory and practice of artistic expression.

While this study explored psychological techniques, it is limited by its focus on just one artwork and may not fully represent Caravaggio's wider range of works. Future research could expand the scope and compare Caravaggio's techniques with those of his contemporaries or predecessors to reveal broader trends in manipulating perception in art.

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