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Evolving Paradigms in Aesthetic Preference: From Classical Philosophy to Experimental Aesthetics

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Abstract
This research focuses on the relationship between aesthetic theory and aesthetic preference, exploring the history of aesthetic theory and perspectives on aesthetic preference in product design, such as views of beauty in classical Greek philosophy, shifts in aesthetic thinking in contemporary cognitive psychology, aesthetic criteria for product design in psychophysics and experimental aesthetics, as well as aesthetic models for testing aesthetic preference. This study aims to understand the concepts of beauty and art under the influence of different historical contexts and finally, to find some suitable models for testing aesthetic preferences in product design. In the process of literature collection, a systematic review and evaluation of the development of aesthetic theory. This study provides a theoretical basis for testing aesthetic preferences in product design and makes readers more clearly recognize the factors that affect aesthetic evaluation.

INTRODUCTION

This literature review begins with classical aesthetic theory, then moves to modern aesthetic theory and finally to cognitive psychology, psychophysics and experimental aesthetics. In the section of classical aesthetic theory, it states the aesthetic views of some philosophers, such as Plato and Aristotle and then explains the transformation of the concept of beauty from objectives to subjectivism. In modern aesthetic preferences, it contrasts classical aesthetic views (which emphasize universal and rational principles of beauty) with modern aesthetic preferences (which focus on the individual's intuitive experience and inner emotions). The results highlight the complexity and richness of aesthetic experience in the context of changing cultures, technologies and global landscapes. This laid the groundwork for the emergence of cognitive psychology and Psychophysics. The cognitive Psychology section explains the important role of understanding aesthetic preferences with key figures such as Goethe, Thoreau and Schopenhauer, each of whom gave unique insights into the interplay between art and human perception. The Psychophysics and Aesthetic Preferences section describes how the study of aesthetic preferences has evolved to consider sensory, cognitive and emotional factors, leading to a deeper understanding of why different people have different tastes in art, music and other areas of beauty. The final section introduces Fechner's experimental aesthetic research and Hekkert's aesthetic contributions, such as the modern application of the Unified Model of Aesthetics in product design and user experience.

History of Aesthetic Preference

Classical Aesthetic Theory and Aesthetic Preferences: "Worldwide, all cultures create objects valued for their artistic or aesthetic qualities. Art and aesthetics are often seen as human universals (Nover[1] Whitfield and Slatter[2]). Classical Greek philosophers had an objectives view of beauty, linking it to fundamental principles such as proportion, symmetry and unity, which signify a harmonious arrangement of an object's elements. Therefore, beauty was considered an inherent characteristic essential to an object's nature (Beardsley[3] W. A. S. Cupchik[4] Lothian[5]). The term 'aesthetics' comes from the ancient Greek 'aisthetiko,' meaning 'sensory perception' (Westphal-Fitch and Tecumseh Fitch[6]) and has a long, debated history dating back to Plato and Aristotle.

Plato introduced the concept of forms or ideas, positing that beauty exists as an absolute, unchangeable and eternal idea-the common essence of all beautiful things. In his view, true beauty is transcendent, immutable and exists in an ideal form.

This "idea of beauty" is fundamental to understanding aesthetic experience, artistic creation and evaluation. Plato suggested that appreciating beauty begins with concrete experiences and elevates to an abstract, pure concept of beauty (Grube[7]). His theory of Forms, particularly the Form of Beauty, is a cornerstone of his philosophical system. In "Phaedo," Plato, through Socrates, argues that all beautiful things in the sensory world partake in the Form of beauty, linking beauty to a transcendent realm of eternal and unchanging Forms (Grube[7]). In this context, Plato's theory of forms renders real-world entities, including humans, imperfect imitations of their perfect Forms, lacking the complete essence of the ideal (Rogers[8]). This theory suggests that the physical world is a mere shadow or image of the true reality of the Realm of Forms (Minanurohman and Fitriani[9]). Plato's metaphysical separation of Forms from the sensible world emphasizes that the physical realm is a flawed representation of the perfect and unchanging Forms (Sedley[10]). The Forms, particularly the Form of the Good, are considered ethically, epistemologically and ontologically before everything else in Plato's universe (Smith[11]).

Contrasting with Plato, Aristotle did not subscribe to a dualistic worldview. He refuted Plato's division of the world into the sensible and the intelligible realms, asserting that Forms or ideas cannot exist independently of concrete objects, but rather are inherent in them (Corkum[12]). Aristotle valued human sensory experiences and desires, emphasizing their role in understanding reality (Song Qien[13]). In his "Poetics," Aristotle presented a contrasting view of art as an imitation of reality, differing from Plato's perception of art as an imperfect copy of ideal forms. He highlighted that art mimics life's actions, characters and scenes through various mediums to reveal life's 'universality' (Papadopoulou[14]). Furthermore, Aristotle's perspective on art as a form of imitation is rooted in his broader philosophical framework, encompassing concepts of virtue, action and agency (Crespo[15]). Aristotle's ideas highlight the interconnectedness between artistic expression and moral values by examining the ethical implications of art and its relationship to human behavior. This holistic view underscores the depth of Aristotle's understanding of art as a medium for exploring universal truths and ethical principles. His empirical approach laid the groundwork for future analyses of artistic forms and styles, emphasizing art as a reflection of nature and life, intended to evoke emotional responses.

In the later development of aesthetic thought, Neoplatonism, inheriting Plato's ideas, infused them with religious and mystical dimensions, influencing thinkers like Saint Augustine and Thomas Aquinas

(John Bussanich[16]). Augustine, in his 'Confessions,' perceived the beauty of the material world as temporary and flawed, advocating for a true, eternal beauty derived from God and divine truth (Harrison[17]). Augustine's theological perspective on beauty is deeply intertwined with his contemplation of the nature of God and the pursuit of divine truth (Little[18]). He posited that true beauty is connected to form, proportion and love, leading individuals to partake in the beauty of God (Vasko[19]). Augustine's examination of beauty within his Confessions extends beyond aesthetics, reflecting his profound theological insights and his comprehension of the relationship between the material world and the divine (Park[20]). Augustine's perspectives on beauty also echo his broader discussions on truth, happiness, God and creation, emphasizing the interconnectedness of these themes in his works (Miles[21]).

Similarly, Thomas Aquinas, a renowned medieval theologian and philosopher, integrated Neoplatonic ideas into his theological framework, blending them with Aristotelian philosophy (Martínez[22]). The Neoplatonic emphasis on the spiritual journey, the contemplation of the divine and the unity of all existence resonated with both Augustine and Aquinas, shaping their theological reflections on the nature of God and the human soul (Martínez[22]). Aquinas's synthesis of Neoplatonism, Aristotelianism and Christian theology resulted in a comprehensive world view that emphasized the harmony between faith and reason, the nature of God and the structure of reality. Their Medieval Christian theological perspectives contributed significantly to the development of aesthetic theories during the Enlightenment era, emphasizing religious and objective standards of beauty.

Initially, aesthetics was a branch of philosophy until German philosopher Alexander Baumgarten in 1735 coined the term 'aesthetics,' distinguishing it as an independent discipline (Kenny[23]). Prior to Baumgarten, aesthetics was commonly viewed as a subset of philosophy. However, his work marked a significant departure by defining aesthetics as the "science of contemplating beauty" (Hiçsönmezler[24]). Baumgarten's contributions were foundational, laying the groundwork for the development of aesthetic theory and the examination of beauty, art and perception as a unique academic discipline (Dolzhich and Dmitrichenkova[25]).

The concept of beauty changed from objectivism to subjectivism, which was largely influenced by the British empiricists in the 18th century. Examples include British empiricists such as Edmund Burke and Immanuel Kant. In Burke's book " A Philosophical Inquiry into the Origins of Our Ideas of the Sublime and the Beautiful, "He explored aesthetic experience in depth, emphasizing the sublime and the beautiful. (Du Preez[26]). Kant introduced the idea of two types of reality, the phenomenal and the noumenal, to bridge the gap between rational thought and sensory experience in our understanding of beauty (Diessner[27]). Furthermore, in the 18th century, German and British philosophers tired of defining beauty, they began to study other aspects of aesthetics, such as the sublime, the picturesque and the aesthetic attitude. This shift has led to less attention being paid to beauty in philosophical discussions (Diessner[27]). This decline marked a shift towards a more subjective understanding of beauty, where the focus moved from identifying objects' objective features to recognizing individuals' idiosyncratic responses towards beauty (Omigie[28]). In conclusion, the British empiricists changed the way we look at beauty and their work has deeply influenced the way we discuss and think about art and beauty today. Schiller and Hegel also contributed to these ideas, they developed their theories by closely observing and thinking about the world around them.

The philosopher who followed Kant, Georg Wilhelm Friedrich Hegel, had a unique view of beauty. He believes that beauty is the ideal and perfect thing that combines the spiritual world and the material world. For Hegel, beauty is like a perfect harmony or balance that shows how spirit exists in material form. This view differs from objective views, he tends to see beauty as something more personal and associated with deeper meanings. (Boonstra and Slagter[29]). For example, he aims to resolve contradictions in reality and sees beauty as more than just pleasing the eye., For him, beauty is the harmonious fusion of spiritual essence and material form (Haas[30]). Overall, this view goes beyond the traditional view that only focuses on visual aspects and true beauty reflects deeper spiritual truths that help to form a universal sense of harmony. This view has led to a richer and more thoughtful exploration of how beauty, the spiritual and the material world are interconnected (Calogero[31]). Philosopher and politician Edmund Burke addressed beauty and the sublime from an emotional perspective. He explores the feelings of surprise, awe and even fear that certain natural phenomena or artistic expressions may evoke. The sublime, he argues, is characterized by obscurity, vastness and power (Burke[32]). Joseph and Burke's contributions to aesthetic theory enriched the understanding of beauty and the sublime in art and literature during the 18th century. Their works continue to influence discussions on aesthetics and the emotional impact of artistic expressions.

This section discusses the shift from seeing beauty as something objective and external to understanding it as something deeply personal and connected to our

spirit. Historically, philosophers like Plato, Aristotle, Augustine and Aquinas saw beauty as an objective quality. However, during the Enlightenment, thinkers like Burke looked more into how beauty makes us feel, while Kant introduced ideas about how we experience beauty both through our senses and our rational minds. Hegel built on this by linking beauty to broader philosophical and ethical questions, suggesting beauty is a perfect balance between the spiritual and the material. This represents a big change in how we think about beauty, from being just about how things look to including how they make us feel and what they mean.

The Modern Aesthetic Preference: The previous section focuses on the transformation of aesthetic theory. This section of literature reviews the diversified development of aesthetic theory after the nineteenth century, which pays more attention to the individual's intuitive experience and inner emotions (Leder[33]). As Verpooten and Dewitte put it: "Plato's and Hegel's emphasis on the overarching principles of beauty and harmony in the classical aesthetic, which reflects a structured and standardized aesthetic approach. In contrast, the modern aesthetic views are more subjective and focused on individual aesthetic experience, which implies a diversity of individual preferences and emotional responses to art as well as beauty (Verpooten and Dewitte[34]). "

Arnold Berleant[35] introduced the concept of "aesthetics of engagement," which encourages us to see aesthetic experience not just in art but in everyday life, marking a shift from the detached views of traditional aesthetics. His ideas indicate that our aesthetic experiences should be interactive and inclusive, it rooted a concern for ecological principles (Li and Ryan[36]).

Berleant proposes that "beauty is a truth verified through physical experience," indicating that aesthetics are deeply embodied in our daily lives (Kuipers[37]). In conclusion, Arnold Berleant's idea of "participatory aesthetics" offers a valuable perspective for rethinking aesthetic experiences. It effectively connects the realms of art and everyday life, suggesting a model of aesthetics that is not only more interactive but also inclusive. This approach shifts the traditional understanding of aesthetics towards one where engagement and community involvement play crucial roles in the aesthetic experience. On this basis, Bertrand Russell provides a unique insight into the nature of art appreciation. He distinguishes between the sensory pleasure that art can evoke and the intellectual appreciation of the craft behind it (Kuchinke[38]).

Russell's view highlights the dual aspect of the aesthetic experience, for example, how art appeals to our senses as well as our intellect. This distinction enriches our understanding of how people find personal meaning and fulfillment in the arts (Leder[39]). Russell's exploration of aesthetics is particularly concerned with how psychological perception plays a role in the way individuals experience art. Unlike philosophers such as Kant, Hegel, or Aristotle, who often delved into the metaphysical aspects of beauty, Russell's approach was more rooted in psychology, arguing that our response to art is influenced as much by our immediate sensory experience as by deeper intellectual engagement. This framework is consistent with contemporary research showing that our emotional responses to art can profoundly shape our aesthetic preferences and perceptions (Silvia[40]). Essentially, Russell's perspective helps us understand the complex relationship between the sensual enjoyment of art and the intellectual satisfaction that comes from understanding its creation. This emphasizes how these experiences provide personal satisfaction and enrich human interaction with art. Modern theories of aesthetic preference consider how cultural influences and technological advances shape our perceptions of beauty. For example, Liu *et al.* 's research examines how globalization influences aesthetic experience by facilitating the exchange of artistic traditions and styles across the globe. This interconnectedness has led to a richer and more diverse approach to aesthetics, making it more eclectic and inclusive than ever before (Liu[41]).

This section discusses the importance placed on personal emotion and experience in modern aesthetics. Representative figures among them are Arnold Berleant and Bertrand Russell. Arnold Berleant's concept of "aesthetics of engagement" integrates aesthetics into everyday life. Bertrand Russell further refined this idea and proposed that by distinguishing between the sensory pleasure of art and the intellectual satisfaction that comes from appreciating the craft. There has been a profound shift in the focus of aesthetics from objective, universal aesthetic standards to a more subjective and emotionally driven aesthetic understanding. This shift highlights the complexity and richness of aesthetic experience in a constantly changing cultural and technological context. (Reber[42]).

Cognitive Psychology and Aesthetic Preferences: During the same period, literature began to place a greater emphasis on emotion and personal experience in aesthetics. Key figures such as Goethe, Friedrich Schiller and Henry David Thoreau exemplify this shift. Goethe, a central figure in the Romantic Movement, delved into the interplay between universality and individuality in his poetry and literary theories. His "Theory of Colors" aimed to bridge art and science. It argued that both artists and scientists engage with the

world through profound intuition and sensitivity (Goethe and Eastlake[43]).

According to Thoreau's extensive mid-19th century accounts, who significantly contributed to environmental monitoring and ecology. So, he is renowned for his detailed observations of nature (Heberling[44] Miller-Rushing and Primack[45]). In "Walden," he explores the relationship between humans and nature from a philosophical perspective (Zhang[46]). Additionally, Thoreau's views on spirituality and aesthetics, where he saw aesthetic and aural experiences as pathways to spiritual ecstasy and revelation, further highlight his deep connection to nature and the transcendental (Malesic[47]).

Schopenhauer's aesthetics are intricately linked with his philosophy, notably his pessimistic world view. He is renowned for his philosophy of pessimism, which triggered debates in German philosophy during the 19th century (Shapshay[48]). Despite his pessimism, Schopenhauer's aesthetics underscore the value of aesthetic experience and the pleasure derived from cognitive engagement with art (Guyer[49]). This cognitive pleasure in aesthetic response is seen as distinct from mere relief from pain, highlighting the cognitive aspect of aesthetic enjoyment (Guyer[49]). Schopenhauer's stance on aesthetic pleasure has been a topic of scholarly discussion, with some scholars contending that he does recognize certain positive pleasures, particularly within aesthetics (Fox[50]). Schopenhauer's exploration of the sublime in nature has been examined, underscoring his efforts to resolve the paradox of the sublime and establish it as a significant aesthetic concept (Vandenabeele[51]). Additionally, Schopenhauer's take on aesthetics offers a nuanced view that brings together the ideas of beauty and the sublime. He uses a dialectical method to point out the differences between these concepts, highlighting the unique qualities of each (Vandenabeele[52]). Essentially, he sees aesthetics not just as simple pleasure but as a distinct kind of joy that stands apart from ordinary satisfaction. This perspective is a key part of his broader philosophical ideas about human experience, suggesting that our encounters with beauty involve deep, transformative insights rather than mere superficial enjoyment.

Ulric Neisser's book, "Cognitive Psychology," published in 1967, is often credited with establishing cognitive psychology as a standalone discipline. This field focuses on understanding human cognitive abilities like thinking, learning and memory (Bergman *et al.* 2004). Neisser stressed the importance of using experimental methods in research and argued for paying more attention to how cognitive processes play out in daily life (Chiriac[53]). His pioneering work helped to develop modern cognitive psychology, advancing our understanding of how cognition, memory and even artificial intelligence relate to the broader aspects of human behavior. These contributions set the stage for further exploration and understanding in the field, integrating cognitive studies with practical, everyday applications (Foltz[54]). For instance, George A. Miller's paper "The Magical Number Seven, Plus or Minus Two" explored the relationship between memory capacity and cognitive processing. Robert B. Zajonc's "mere-exposure effect" facilitated smoother and easier information processing, deepening the understanding of the interplay between emotions and cognition, as seen in Norbert Schwarz's studies on how emotional states affect cognitive processes and judgments and Daniel Kahneman's exploration of human judgment and decision-making. Neisser's book played a pivotal role in shaping research and theory in the field for the following two decades (Leahy and Martell[55]). Neisser's contributions extended beyond the publication of his book, as he was also instrumental in the development of the contemporary psychology of autobiographical memory and the ecological approach to human cognition (Sotgiu[56]). Neisser's role in freeing memory research from traditional constraints and his contributions to defining cognitive psychology have been pivotal (Bahrick[57]).

In the late 20th and early 21st centuries, psychologists began exploring how processing fluency influences people's judgments and decisions, especially in aesthetic preferences. Sensory perception affects aesthetic preferences, such as familiarity, maintaining the belief that aesthetics are based on sensory satisfaction (Suhaimi[58]). Aesthetic experience occurs during visual encounters with any type of object, scene, or event (Leder[39]). Studies by Whittlesea and Williams explore how processing fluency affects recognition and feelings of familiarity, suggesting that it can lead to a sense of familiarity, even without prior exposure (Whittlesea and Williams[59]).

Winkielman and Cacioppo[60] examined how processing fluency influences judgment, showing that ease of processing can lead to positive affective judgments. Reber[42] explored how subliminal visual primes, recognition speed and fluency manipulation affect the perception and preference of images or objects. They found that contours matching the target picture facilitate processing (high fluency), consistent with studies showing subliminal visual primes enhance stimulus identification accuracy. Moreover, the influence of processing fluency on judgments has been observed in various contexts. Research suggests that statements processed fluently are often perceived as more truthful. This phenomenon is supported by Unkelbach's study, which demonstrates that fluently processed information tends to be judged as more familiar and thus more credible. Similarly, instances

that are processed with ease are believed to occur more frequently and names that are easier to process are deemed more famous (Unkelbach[61]). Moreover, Westerman *et al.* further elaborate on this concept by linking processing fluency to favorable evaluations., they found that items processed with greater fluency are generally liked more and rated more positively (Westerman[62]).

Research into aesthetic preferences has expanded to include not only the effects of processing fluency but also other measurable factors that influence aesthetic judgments. According to Schwarz and Winkielman 2004, variables such as figure-ground contrast, stimulus repetition, symmetry and proto typicality play significant roles in shaping aesthetic judgments. Despite extensive studies in this field, many questions remain unanswered, particularly concerning the complex interplay between these factors and how they collectively influence individual preferences for beauty. Furthermore, the debate over whether aesthetic preferences are universal continues within the academic community. Leder[63] suggest that these preferences vary greatly due to cultural, historical and social influences. Conversely, Bertamini[64] explored the role of symmetry, noting that it is often associated with positive emotional responses due to its perceived simplicity, suggesting a possible universal appeal for balanced and proportional designs.

While significant progress has been made in the field of aesthetic preference, numerous areas still require further investigation. There is a pressing need for more detailed research into how specific visual characteristics impact aesthetic preferences and to assess whether there are universal principles at play across different cultures. Future studies should leverage interdisciplinary research methodologies, which will be instrumental in deepening our understanding of the factors that shape aesthetic preferences. Such an approach will not only strengthen the theoretical framework of aesthetics but also enhance practical applications in psychology, design and related disciplines. This comprehensive method will allow researchers to build on existing knowledge and explore new dimensions in the complex interaction of aesthetic perception and preference.

Psychophysics and Aesthetic Preferences: Psychophysics, intimately linked with cognitive psychology, examines how sensory systems respond to physical stimuli, exploring how these stimuli affect our perception of beauty (Bertamini[64]). Psychophysics, intimately linked with cognitive psychology, examines how sensory systems respond to physical stimuli, exploring how these stimuli affect our perception of beauty (Palmer and Griscom[65]). Before Fechner,

Weber's studies in 1846 on perceptual thresholds and the smallest differences in stimuli detectable by humans established foundational concepts like Weber's Law. This work has been crucial for understanding how the brain discriminates subtle differences in stimuli, aiding in the development of strategies for perceiving aesthetic qualities in objects.

In the 19th century, Gustav Fechner expanded on Ernst Weber's earlier studies to enhance our understanding of aesthetic perception. Fechner's work[66], notably his 1876 publication "Vorschule der Ästhetik," pioneered the use of experimental methods to analyze the relationship between the intensity of physical stimuli and their perceived impact. This approach laid the foundational principles for quantitative aesthetics but did not fully address the subjective variations in how individuals experience beauty. Contemporary research in aesthetics has broadened its approach, incorporating diverse methodologies that acknowledge the roles of cultural, emotional and contextual factors in shaping aesthetic perception.

Daniel Berlyne later built upon these experimental foundations, exploring how sensory stimuli influence psychological responses. His Arousal Theory and Collative-Motivation Model introduced in 1970, focused on how variables like complexity, novelty and uncertainty in stimuli could affect a person's arousal levels and, consequently, their aesthetic preferences (Berlyne[67]). Berlyne's models suggest that there is an optimal level of arousal that is most aesthetically pleasing, proposing that the qualities of novelty and complexity play critical roles in determining an individual's aesthetic response (Whitfield[68]).

Daniel Berlyne's theories, notably his exploration of the inverted U-shape relationship between complexity and liking, have had a profound impact across various disciplines, such as psychology, aesthetics and product design. This model suggests that there is an optimal level of complexity that most appeals to individuals, a concept that resonates with established theories like Maslow's hierarchy of needs and Herzberg's two-factor theory of motivation (Althuizen[69]). Berlyne's approach has been influential in both theoretical and practical fields, from aesthetic assessments to enhancing user experience in product design, highlighting the critical role of cognitive and emotional factors. However, Berlyne's focus on complexity has received criticism for not fully capturing the nuanced nature of aesthetic preferences. Critics like Whitfield[70] and Eysenck and Iwawaki[71] argued that aesthetic preferences cannot be fully understood without considering broader cultural and social contexts. Wheatfield's Theory of Dominance and Reciprocity further develops this by proposing that

aesthetic preferences are also shaped by personal experiences and the social environment, suggesting a more layered understanding of how individuals engage with aesthetics (Corradi[72]). In essence, while Berlyne's Collative-Motivation Model has significantly influenced the study of aesthetics and design, the ongoing evolution in these fields underscores the necessity for models that incorporate a wider array of influences on human cognition, motivation and aesthetic preferences, ensuring a more comprehensive approach to understanding these complex interactions.

Recent studies have deepened our understanding of how genetic factors significantly influence aesthetic preferences, suggesting that our affinity for specific styles or designs could be inherent in our DNA, as discussed in Zeki's research (Zeki[73]). This insight adds a new dimension to the complexity of aesthetic appreciation models by introducing genetics as an underlying influence in our preferences for certain artistic styles. Particularly, it highlights how our genetic predisposition toward safety-a trait essential for survival as Hendratmoko *et al.*-plays a role in shaping these preferences (Hendratmoko[74]). This biological drive for safety often leads to a preference for design elements that embody stability, harmony and symmetry, reflecting an instinctual inclination towards environments and objects perceived as secure and orderly.

In response to Berlyne's Collative-Motivation Model's perceived limitations, recent advancements in psychological aesthetics have led to the development of more comprehensive theories that incorporate a wider range of psychological and sociocultural factors. One significant advancement is the Theory of Affective Arousal and Aesthetic Preferences (TAAP), introduced by Leder[63]. This theory suggests that aesthetic preferences are significantly influenced by emotional arousal, attention and cognitive processes, thus expanding the scope of aesthetic study beyond Berlyne's initial framework by emphasizing the emotional components of aesthetic experience. Critiques of Berlyne's model, such as those by Eysenck and Iwawaki[71], have argued that it oversimplified the complex interplay of cultural, social, perceptual and cognitive factors that shape aesthetic preferences. They advocate for a model that integrates these dimensions to provide a richer understanding of aesthetic appreciation. Further contributing to the field, Rosch[75] introduced categorization principles that have influenced aesthetic perception research. He highlighted how prototypes influence preferences, suggesting people generally prefer objects that resemble familiar, established designs. This was expanded upon by Whitfield and Slatter[1], who linked this preference for prototypes to cognitive processes,

a phenomenon they termed the "preference-for-prototypes" effect. Building on these ideas, the Categorical Motivation Model (CM), which integrates Berlyne's arousal-based research[76] with Whitfield's findings, was developed to provide a more nuanced understanding of the motivational and cognitive underpinnings of aesthetic preferences. This model has evolved to incorporate both the intrinsic motivational elements of aesthetics and the cognitive processes involved in categorization. Additionally, Trope and Liberman[77] introduced the concept of "psychological distance," which posits that individuals' aesthetic preferences vary based on their perceived psychological proximity to aesthetic objects. This concept provides a novel lens through which to examine aesthetic preferences, suggesting that our emotional and cognitive connection to objects shapes our aesthetic judgments. These advancements collectively provide a robust theoretical foundation that facilitates deeper exploration into the diverse factors that influence aesthetic preferences, offering insights into the complex interplay between individual psychology and broader cultural influences.

Despite facing criticism, Berlyne's Collative-Motivation Model continues to be a pivotal framework in the study of aesthetics and motivation. This model highlights the roles of novelty and complexity in influencing aesthetic preferences, sparking extensive research into how these elements interact with individual differences. It provides a robust structure for exploring how various internal and external factors shape preferences, blending motivational aspects with evaluative processes to form a comprehensive understanding of aesthetic judgment. Berlyne's framework, while acknowledged for its limitations, remains a foundational tool in the ongoing exploration of aesthetics. It serves as a catalyst for further studies into how different motivations and perceptions influence personal tastes and preferences. The evolution of this model involves integrating newer insights from diverse academic fields, enhancing our comprehension of aesthetic preferences in a more holistic manner. This interdisciplinary approach not only enriches the existing model but also promises a deeper, more nuanced understanding of the complexities of human aesthetic judgment, which could lead to more effective ways of addressing individual differences in aesthetic response.

Experimental Aesthetics: Psychophysics serves as a crucial foundation for understanding how we perceive sensory information, which is vital for experimental aesthetics-a field applied in focused studies of aesthetic experiences since the early 19th century. Gustav Fechner, a pioneer in this area, established

what is known as empirical aesthetics (Ortlieb[78]). Cupchik's research shows that it significantly diverging from the theories of earlier philosophers like Kant and Baumgarten. Fechner argued that cognitive processes are central to aesthetic pleasure (G. C. Cupchik[79]). Westphal *et al.* refined this idea and shows that it influenced by both direct factors - such as the physical attributes of an object, like its symmetry and color-and associative factors, which involve the subjective interpretations and emotional responses elicited by these objects (Westphal-Fitch and Tecumseh Fitch[6]). Fechner's work emphasized the interaction between these direct and associative factors and their impact on human aesthetic judgments, particularly within visual aesthetics. His research aimed to systematically explore the underlying principles of how people experience and derive pleasure from aesthetic stimuli, marking a significant shift from purely philosophical to more empirical approaches to studying aesthetics. This methodological shift has helped shape the ways in which we understand the complexity of aesthetic experience, integrating both observable qualities and individual psychological responses.

In Gustav Fechner's seminal work "Elemente der Psychophysik," he introduces methods to quantify the effects of different sensory stimuli-such as light, color and shape-on human perception. This work gave rise to "Fechner's Law," which posits a logarithmic relationship between the intensity of a stimulus and the perceived intensity by an observer (Johnson[80]). This law has been widely influential, finding applications across various fields including metacognition and visual working memory, where it helps describe how confidence in perceptions correlates with the intensity of the stimulus in a logarithmic manner (Berg[81]). Fechner's Law also plays a crucial role in the field of Quality of Experience (QoE), which assesses how users perceive the quality of different types of services and media (Reichl[82]). Despite its broad application, Fechner's Law and its underlying mechanisms, particularly in comparison to Weber's Law, continue to be a subject of debate and study, reflecting the ongoing complexity and challenges within psycho physical research (Pardo-Vazquez[83]). Furthermore, while Fechner's methods were groundbreaking for the development of experimental aesthetics, they have also been critiqued for not adequately capturing the subjective and individual differences in how people experience aesthetics, which underscores the ongoing evolution and challenges in fully understanding the intersection of psychology and aesthetics (Whitfield and de Destefani[85]).

Gustav Fechner's pioneering work in psychophysics has not only shaped the foundations of the field but has also provided vital tools and theoretical insights that aid researchers in a variety of disciplines, including design aesthetics. One such researcher, Paul Hekkert, has built on Fechner's methodologies to explore how design elements influence user experience. Recognized for his significant contributions to experimental aesthetics, Hekkert has focused on how the emotional and aesthetic impacts of product design affect human responses to beauty.

His research aligns with the broader goals of experimental aesthetics by examining how designed artifacts elicit subjective experiences and responses. Hekkert investigates the dynamics between typicality and novelty in industrial design, offering insights into how these elements predict aesthetic preferences and shape aesthetic judgments (Hekkert[85]). In his work, "Design and Emotion: The Experience of Everyday Things," he and his colleagues discuss the importance of considering emotional and aesthetic aspects in product design, alongside functionality, to enhance user experience and foster emotional connections with products (McDonagh[86]).

Paul Hekkert and Helmut Leder[63] put forth the idea that despite cultural and temporal differences, it is possible to identify universal aesthetic preferences. They focused on design elements like balanced proportions and familiar features, which they believe align with broad preferences and suggest the potential for a universal consensus on what is aesthetically pleasing. This idea supports a more global perspective on aesthetic appreciation.

Furthering their research, Hekkert and his colleagues examined how safety and risk in product design affect aesthetic judgments within their Unified Model of Aesthetics. A key finding from their study by Thurgood[87] was the interplay between typicality and novelty, where they discovered that products are most appealing when these elements are optimally balanced[87]. This study also explored different dimensions of aesthetic evaluation, including the cognitive, perceptual (Post[88]) and social aspects[89], providing a comprehensive framework for understanding how various factors contribute to aesthetic preferences in product design.

Paul Hekkert's work has developed a robust framework for understanding how individuals interact with and perceive products, with a strong emphasis on the sensory aspects of aesthetic experiences. He explores key aesthetic elements like novelty, typicality, unity, variety, connectedness and autonomy, noting how our perceptual system seeks out structure, order, or consistency in products. His research serves as both a theoretical base for design aesthetics and a practical guide for designing more engaging and satisfying user experiences.

Further research has examined how personal backgrounds and expertise level shape aesthetic preferences. Studies by Leder and Carbon have demonstrated that design professionals often perceive and judge aesthetics differently than layperson (Leder and Carbon[90]). These differences underscore the impact of specialized knowledge and training on aesthetic evaluation, suggesting that the aesthetic decisions of design professionals may not always align with the preferences of the broader public. Wheatfield noted that this specialized, design-centric knowledge significantly influences the outcomes of aesthetic evaluations (Whitfield[91]). while research by Creusen and others highlight how seasoned designers may differ in their judgments compared to newcomers or non-experts in the field (Creusen and Snelders[92] Mugge and Schoormans[93] Person and Snelders[94]).

The research into how design professionals shape consumer preferences underscores the significant influence that designers hold over market trends and user satisfaction. As the aesthetic innovation continues, it becomes crucial for designers to not only follow their professional inclinations but also to consider the broader impacts of their design choices on the general public. This understanding of the gap between professional aesthetics and public preferences is key to developing products that resonate on both levels. By acknowledging this divide, designers have the opportunity to bridge the gap, crafting designs that not only meet the high standards of aesthetic appeal within the professional community but also appeal to the aesthetic sensibilities of the wider audience. This balanced approach can lead to products that are both innovative and widely accepted, enhancing user engagement and satisfaction. This holistic perspective in design practice ensures that innovations are not only forward-thinking but also inclusively cater to a diverse consumer base.

CONCLUSIONS

This literature review effectively charts the trajectory of aesthetic theory from its classical foundations in the philosophies of Plato and Aristotle to contemporary perspectives that embrace individual and diverse experiences. It underscores how advancements in cognitive psychology and psychophysics have enhanced our comprehension of aesthetic perception, linking sensory experiences to emotional and cognitive responses. The application of experimental methodologies, pioneered by figures like Fechner, illustrates how aesthetic elements can be quantitatively analyzed to refine product design and user interactions. The thesis also introduces the Unified Model of Aesthetics, a framework that adapts well to modern approaches for evaluating aesthetic preferences. It emphasizes that effective design transcends functionality, integrating emotional and aesthetic considerations to cultivate richer user engagement. Ultimately, the review advocates for a holistic approach to understanding aesthetic preferences, influenced by an amalgam of historical, psychological and cultural factors. It calls for interdisciplinary research to further explore how these influences interplay with human experiences in art and design, ensuring that aesthetic studies remain pertinent in today's global and technologically advanced context. This comprehensive synthesis not only bridges theoretical insights with practical applications but also highlights the dynamic evolution of aesthetics in response to changing societal values and technological advancements.

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