

The Role of Olympic Visual Identity in Shaping National Image Perception Among Chinese Citizens: A Conceptual Paper

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ARTICLE INFO	ABSTRACT
Received: 18 Dec 2024	<p>This study investigates the role of Olympic visual identity design (OVID) in shaping national image perception among citizens of the host nation, with a focus on cognitive and emotional mechanisms. Despite extensive research on branding and national identity, few studies systematically explore how OVID influences national image perception, particularly within the host country. The study develops a conceptual framework integrating visual communication, semiotics, cognitive psychology, and nation branding to examine how OVID (stimulus) affects cognitive processing (organism), ultimately shaping national image perception and related behavioral intentions (response). Using the Stimulus-Organism-Response (SOR) model, the research identifies key design attributes—such as aesthetic quality (harmony, naturalness, elaborateness) and cultural relevance (cultural symbolism, historical relevance)—that influence attention, comprehension, memory retention, and emotional engagement. Findings reveal that culturally coherent and visually distinctive OVID strengthens national image perception by reinforcing cultural identity and fostering emotional engagement. Emotionally charged and symbolically rich designs capture attention and enhance memory retention, with emotional responses mediating the relationship between visual identity and behaviors such as tourism interest and national pride. This research contributes to the understanding of Olympic branding and national identity, offering practical insights for Olympic organizers and policymakers. The proposed framework calls for future empirical validation through quantitative modeling and cross-cultural studies.</p> <p>Keywords: Olympic Visual Identity (OVID),National Image Perception,Audience Cognition,Stimulus-Organism-Response (SOR) Model.</p>
Revised: 10 Feb 2025	
Accepted: 28 Feb 2025	

INTRODUCTION

The Olympic Games serve as a global platform for national branding, cultural diplomacy, and visual storytelling, where each host country strategically constructs its visual identity to communicate national values and enhance its international reputation (Anholt, 2010; Dinnie, 2015). The visual identity of the Olympic Games, which includes emblems, mascots, pictograms, color schemes, and typography, is not merely a symbolic representation of the event but also a strategic tool for shaping the perception of national image (Van den Bosch et al., 2004; Balmer, 2017). Given the extensive media coverage and high levels of audience engagement through digital platforms, Olympic visual identity has become an integral component of nation branding and global cultural representation (Knott, Fyall & Jones, 2017).

The increasing influence of digital and social media has amplified audience participation in the Olympics, transforming it into a highly interactive global event. According to Brand Finance (2024), the Olympics brand is currently valued at \$11.4 billion, reflecting a 37% increase since Tokyo 2020, largely due to expanding broadcasting and sponsorship deals. The official Olympic sponsors (TOP Partners) have also experienced significant brand value growth, with companies like Alibaba and Procter & Gamble (P&G) seeing the largest gains in brand familiarity and

reputation. Additionally, Olympic-related viral moments, such as Italian gymnast Giorgia Villa's unexpected promotion of Parmigiano Reggiano cheese and the Mongolian team's fashion-forward opening ceremony attire, illustrate the power of visual identity in driving brand engagement and shaping cultural narratives (Brand Finance, 2024).

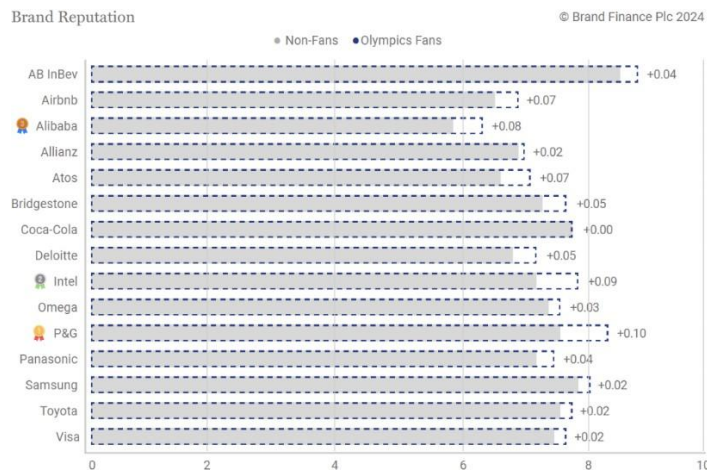


Figure1 Brand reputation: Among the 16 brands, P&G, Intel, and Alibaba saw the largest boosts in reputation, with increases of +0.10, +0.09, and +0.08 points, respectively.

Beyond its role in audience engagement, the Olympics also serve as a powerful tool for national branding and cultural diplomacy. Each host country utilizes its visual identity system to construct and project an international image that aligns with its strategic cultural and economic objectives. For instance, the 1964 Tokyo Olympics played a pivotal role in reintroducing Japan to the global stage as a modernized, technologically advanced nation, while the Beijing 2008 Olympics showcased China's rapid economic growth, infrastructural development, and cultural heritage (Fan, 2010; Zhang, 2013). More recently, the Tokyo 2020 Olympics reinforced Japan's commitment to sustainability, inclusivity, and technological innovation, with its "Unity in Diversity" concept embedded in its visual identity (IOC, 2020). These cases highlight how Olympic visual identity contributes to shaping international perceptions of a nation's cultural and economic status.

However, despite the clear strategic intent behind Olympic visual identity, audience perception and reception may vary across cultural and cognitive contexts (Keller, 1993; Kim, 2018). While some elements of Olympic design resonate universally, others may be interpreted differently depending on an audience's cultural background, media consumption patterns, and cognitive biases (Kapferer, 2012). According to Brand Finance (2024), 70% of a country's Global Soft Power Index ranking correlates with the total number of medals won in the Olympics, demonstrating that sporting success is intrinsically linked to national prestige. However, hosting the Olympics does not necessarily yield the same positive impact, as cities often struggle with post-event economic burdens (Brand Finance, 2024). This underscores the importance of visual identity in ensuring that the Olympic Games serve as a long-term asset for national branding, rather than a short-lived economic liability.

To understand this phenomenon, this paper integrates theoretical perspectives from Gestalt psychology, semiotics, and cognitive psychology to examine how audiences process Olympic visual identity and its impact on national branding (Arnheim, 1974; Eco, 1976; Norman, 2004). Specifically, the Stimulus-Organism-Response (SOR) model (Mehrabian & Russell, 1974) is employed to analyze how Olympic visual identity functions as a stimulus that triggers audience cognition, emotional response, and subsequent perception of national image. The study seeks to answer the following key research questions:

1. How do the design elements of Olympic visual identity (e.g., emblems, mascots, pictograms, colors) contribute to shaping national image perception?
2. What cognitive and emotional processes influence audience reception of Olympic visual identity in relation to national branding?
3. How can the SOR model be applied to analyze the interaction between Olympic visual identity and audience perception?

4. What are the measurable indicators for evaluating the effectiveness of Olympic visual identity in shaping national image?

By synthesizing insights from branding theory, visual communication, and audience cognition, this study aims to develop a structured framework for evaluating the impact of Olympic visual identity on national image perception. The findings will contribute to both academic discourse and practical applications, providing valuable insights for design professionals, Olympic organizers, and policymakers. Moreover, by proposing a systematic evaluation model, this research lays the groundwork for future empirical studies that quantify audience responses to Olympic visual identity elements, ultimately bridging the gap between design strategy and audience perception in Olympic branding.

1. LITERATURE REVIEW

1.1 Olympic Visual Identity Design

The visual identity of the Olympic Games is a crucial element of its brand strategy, serving not only as a symbolic representation of the event but also as a strategic tool for shaping the perception of national image (Van den Bosch et al., 2004; Balmer, 2017). As one of the most widely recognized global sporting events, the Olympics leverage visual identity to establish a cohesive and recognizable brand, enhance public engagement, and project the cultural and historical narratives of the host country (Knott, Fyall & Jones, 2017; Dinnie, 2015). Olympic visual identity includes a comprehensive design system composed of logos (emblems), mascots, pictograms, typography, and color schemes, all of which work collectively to communicate the values of the Games and reinforce national identity (IOC, 2020).

Table1 Stimuli Dimensions of Aesthetic Quality and Cultural Relevance

Dimension	Findings	References
Harmony	Harmony in design is achieved through symmetry, balance, parallelism, repetition, and proportion, ensuring visual consistency and structural balance.	Henderson & Cote (1998), van der Lans et al. (2009), IOC (2020)
Naturalness	Naturalness in design enhances familiarity and intuitive recognition through representativeness and organicity, making visuals more relatable and engaging.	Henderson & Cote (1998), Norman (2004), Keller (1993)
Elaborateness	Elaborateness, including complexity, depth, and activeness, contributes to the perceived sophistication and engagement of Olympic visual identity.	Henderson et al. (2003), Henderson & Cote (1998), van der Lans et al. (2009)
Cultural Symbolism	Cultural symbolism in Olympic branding incorporates national symbols and traditional patterns to reinforce a host country's unique identity and heritage.	Govers & Go (2009), Traganou (2009), Dinnie (2015)
Historical Relevance	Historical relevance in Olympic visual identity draws inspiration from historical art, architecture, or indigenous motifs, creating continuity between past and present.	Guttmann (2002), Dinnie (2015), Fan (2010)

AESTHETIC QUALITY

The aesthetic appeal of Olympic visual identity plays a significant role in public acceptance and recognition (Henderson et al., 2003). Studies have identified three key factors in assessing the aesthetic quality of Olympic design:

Harmony in design refers to a coherent arrangement of elements, ensuring visual consistency and structural balance (Henderson & Cote, 1998). It is achieved through key principles such as symmetry, balance, parallelism, repetition, and proportion, which collectively enhance the aesthetic appeal and recognizability of Olympic visual identity. A design is symmetric when it appears as a reflection along one or more axes, creating a sense of stability and order.

For instance, the Beijing 2008 emblem, shaped like a human figure in seal script, demonstrates bilateral symmetry, reinforcing its structural harmony and cultural symbolism. Balance refers to a visual equilibrium, where design elements are distributed around a center of suspension. The Tokyo 2020 emblem, composed of 45 equally weighted geometric forms, exemplifies balanced composition, ensuring clarity and consistency in its visual presentation. Parallel designs feature multiple lines or elements arranged adjacently, reinforcing rhythm and continuity. The Rio 2016 pictograms, designed with consistent stroke thickness and curved forms, create a parallel visual system that enhances cohesion across different sports icons (van der Lans et al., 2009). Repetition – The iterative use of similar or identical design elements contributes to visual unity and pattern recognition. The Barcelona 1992 pictograms, inspired by Spanish cave paintings, utilize repetitive strokes to establish a consistent and engaging visual language (Guttmann, 2002). Proportion – Proportion is the relationship between horizontal and vertical dimensions, ensuring aesthetically pleasing spatial composition. The London 2012 logo, despite its unconventional form, maintained proportional balance across digital and physical applications, optimizing its impact across various media (Wolff Olins, 2012).

Naturalness in design reflects the extent to which a visual composition represents commonly experienced objects, enhancing familiarity and intuitive recognition (Henderson & Cote, 1998). It consists of two key dimensions: Representativeness – This refers to how realistically a design distills an object's most typical features, making it more identifiable and relatable. For instance, the Beijing 2008 Olympic emblem, inspired by a traditional Chinese seal and human figure, effectively captures the essence of Chinese calligraphy in a recognizable form. Organicity – Organicity describes the use of natural, flowing shapes rather than angular or highly abstract forms. Circular and curved designs often create a softer, more approachable aesthetic, as seen in the Rio 2016 emblem, which features interconnected, fluid lines symbolizing unity and movement (van der Lans et al., 2009). Research in cognitive psychology suggests that organic and culturally relevant designs enhance audience connection and memorability (Norman, 2004). Olympic visual identity often incorporates nature-inspired elements or traditional motifs from the host country to evoke a sense of familiarity and authenticity (Keller, 1993).

Elaborateness in Olympic visual identity refers to the complexity, depth, and activity of a design, which collectively influence its perceived sophistication and engagement potential (Henderson et al., 2003). Complexity in design can be understood as a form of irregularity, an organic arrangement of heterogeneous visual elements, and an ornate design sensibility (Henderson et al., 2003). While increased complexity may sometimes reduce recognizability, it often enhances interest and engagement. The Sydney 2000 Olympic emblem serves as an illustrative example, featuring a stylized athlete composed of elements such as the Sydney Opera House, traditional Aboriginal hunting tools like the boomerang, and dynamic human figures. These components collectively embody strong national identity characteristics, fostering emotional resonance among audiences. Depth in Olympic visual identity refers to the perception of three-dimensionality or layered composition within a design, which enhances visual engagement and recognition (Henderson & Cote, 1998). A design with greater depth tends to appear more dynamic and immersive, drawing viewers' attention and increasing memorability. For example, the Rio 2016 emblem effectively incorporated depth by using a three-dimensional interlocking figure, which not only symbolized unity but also created a sense of spatial layering and movement, making it visually compelling and adaptable across different media platforms. Activeness in logo design typically refers to a sense of dynamism and fluidity, which enhances the rhythm and motion of the design. Designs with strong motion cues are often associated with symmetry, balance, and complexity, making them more likely to stimulate the audience's senses and capture attention (Henderson et al., 1998). For instance, the Rio 2016 Olympic emblem exemplifies activeness by incorporating curved, interwoven figures, creating a sense of movement and fluidity, which enhances visual appeal and audience engagement (van der Lans et al., 2009).

CULTURAL RELEVANCE

Cultural representation is a fundamental component of Olympic visual identity, as it allows the host country to express its national identity, traditions, and values on a global stage (Govers & Go, 2009). Olympic design elements are often imbued with symbolic meaning, reflecting both historical continuity and contemporary national aspirations (Fan, 2010).

Cultural Symbolism – Olympic branding frequently incorporates national symbols, traditional patterns, or historical references to create a distinctive identity for the host country. For instance, the Tokyo 1964 emblem, designed by Yusaku Kamekura, introduced a bold red circle symbolizing the rising sun in Nipon culture, for others this was a direct reference to Japan's flag, reinforcing Japan's global identity (Traganou, J. 2009).

Historical Connection – Olympic visual identity often draws inspiration from historical art forms, architectural styles, or indigenous motifs. The Barcelona 1992 pictograms, for example, were inspired by Spanish cave paintings, creating a connection between the nation's artistic heritage and modern sports iconography (Guttmann, 2002).

Similarly, the Beijing 2008 pictograms were based on Chinese oracle bone script, reinforcing the country's historical depth and cultural continuity.

Empirical studies confirm that culturally embedded visual elements enhance audience engagement and brand recall. By integrating national cultural symbols, Olympic visual identity serves as both a storytelling mechanism and a soft power strategy, strengthening the host country's image and global influence (Dinnie, 2015).

1.2 Audience Cognitive Behavior in Olympic Visual Identity Design

Audience cognitive behavior plays a crucial role in shaping perceptions of Olympic visual identity and its impact on national image. Cognitive responses to visual stimuli can be categorized into four primary dimensions: attention, comprehension, memory retention, and emotion. These factors collectively determine how individuals process and engage with the visual identity of the Olympics, ultimately influencing national brand perception.

Table2 Mediating Factors Linking Olympic visual Identity Design and Construction of National Image

Dimension	Findings	References
Attention	Attention is guided by bottom-up salience, top-down feature guidance, scene structure, search history, and target value.	Wolfe & Horowitz (2017)
	Attention can be shifted without eye movement and is influenced by exogenous (stimulus-driven) and endogenous (goal-directed) control.	Posner (1980)
	Saliency maps and center-surround mechanisms predict which areas in a visual scene attract attention.	Itti & Koch (2001)
Comprehension	Comprehension is enhanced when stimuli align with prior knowledge and cultural background, making symbolic elements easier to process.	Eco (1976), Peirce (1931)
	Gestalt principles, such as proximity and similarity, facilitate comprehension by structuring visual information meaningfully.	Arnheim (1974), Palmer & Rock (1994)
Memory Retention	Memory retention is improved when stimuli are emotionally engaging and semantically relevant, aiding long-term recall.	Paivio (1986), Baddeley (2000)
	High cognitive load and excessive complexity hinder memory retention, reducing the effectiveness of branding elements.	Sweller (1988), Berlyne (1971)
Emotion	Emotion plays a role in perception and decision-making, influencing how audiences connect with visual elements.	Russell (1980), Norman (2004)
	Positive emotional engagement strengthens brand attachment and recall, shaping national identity perceptions.	Dinnie (2015), Anholt (2007)

ATTENTION

Attention is a prerequisite for effective visual communication and is fundamental in ensuring that an Olympic emblem, mascot, or other design elements capture audience interest. According to Posner (1980), attention is directed by a combination of stimulus-driven (bottom-up) and goal-directed (top-down) processes . Olympic branding elements must be designed to stand out in a visually crowded media environment, which aligns with computational models of visual attention suggesting that features such as color contrast, motion, and symmetry enhance saliency (Itti & Koch, 2001) .For example, the Tokyo 2020 Olympic emblem, designed by Asao Tokolo, featured an indigo checkered pattern that created strong visual rhythm and high contrast, drawing immediate viewer attention. This principle is supported by research indicating that repetitive patterns and symmetry can enhance visual engagement (Wolfe & Horowitz, 2004) .

COMPREHENSION

Comprehension refers to the process through which audiences interpret and assign meaning to Olympic visual identity elements. Research in multimedia learning (Mayer, 2005) highlights that individuals process information more effectively when visuals are designed in alignment with cognitive load principles . The Olympic emblems and mascots must balance simplicity with cultural depth to ensure they are both recognizable and meaningful across diverse audience groups. For instance, the pictograms of the Beijing 2008 Olympics were based on traditional Chinese seal engraving, reinforcing their cultural authenticity while maintaining high clarity for international audiences. Semiotic studies indicate that culturally embedded symbols enhance comprehension by leveraging pre-existing cognitive schemas (Eco, 1976; Barthes, 1994) .

MEMORY RETENTION

The memorability of Olympic visual identity elements is crucial for their effectiveness in shaping national image. Research in cognitive psychology suggests that visually distinct and contextually relevant imagery improves long-term retention (Konkle et al., 2010) . The role of visual distinctiveness has been extensively studied in the domain of branding, where distinctive logos lead to stronger brand recall (Henderson & Cote, 1998). Studies show that Olympic branding incorporating iconic national symbols has a higher likelihood of being remembered. The Sydney 2000 emblem, which featured the Sydney Opera House and a boomerang-shaped figure, exemplified this principle by integrating instantly recognizable elements of Australian culture .

EMOTION

Emotional engagement significantly influences audience perception of Olympic visual identity. Research on aesthetic emotions suggests that design elements evoking awe, pride, and nostalgia contribute to a stronger emotional connection with the brand (Desmet, 2002) . The Beijing 2008 Olympics, for example, successfully leveraged emotions through the use of red and gold color schemes, which are associated with prosperity and celebration in Chinese culture. Additionally, Russell's (1980) circumplex model of affect indicates that positive emotional responses to visual stimuli enhance brand association and national image formation . This finding aligns with research showing that emotionally engaging designs in Olympic branding lead to stronger audience recall and national identity reinforcement (Anholt, 2007) . Understanding audience cognitive behavior is essential for evaluating the effectiveness of Olympic visual identity in shaping national image perception. Attention mechanisms ensure that designs capture audience focus, comprehension facilitates meaning-making, memory retention enhances long-term recall, and emotional responses strengthen brand attachment. These findings provide a strong foundation for future empirical research on Olympic branding, with implications for both design strategy and national branding efforts.

1.3 National Image Construction

The Olympic Visual Identity Design (OVID) serves as a critical medium for shaping the National Image (NI) of host countries, as it is one of the most globally visible elements associated with the Olympic Games. Within the framework of the Stimulus-Organism-Response (SOR) model, OVID functions as a stimulus (S) that influences audience cognitive behavior (O) and, ultimately, affects the construction of national image (R) through two key dimensions: National Image Perception (NIP) and National Image-Related Behavioral Intentions (NIRBI). This section systematically develops these two variables based on the existing literature, establishing their relevance within the SOR model.

Table3 Mediating Factors Linking Olympic visual Identity Design and Construction of National Image

Dimension	Findings	References
National Image Perception	National image construction is influenced by multiple factors, such as cultural communication, sports events, and diplomatic interactions.	Zhang et al. (2023)
	Nation branding involves elements like brand equity, brand perception, and brand positioning.	Kotler & Gertner (2004)
	National image is a crucial component of soft power and can be influenced by public diplomacy and cultural exchanges.	Melissen (2005)
National Image-Related Behavioral Intentions	National image perception affects audience behavior, including tourism decisions, investment choices, and brand consumption.	Zhang et al. (2023)
	Nation branding emphasizes how brand loyalty impacts long-term audience behavior, such as supporting national products or services.	Kotler & Gertner (2004)

NATIONAL IMAGE PERCEPTION (NIP)

National Image Perception refers to the cognitive and affective evaluations that international audiences develop toward a country, shaped by various factors such as cultural communication, public diplomacy, and brand representation (Kotler & Gertner, 2004). The role of OVID in shaping NIP has been widely acknowledged in nation branding and public diplomacy research, as it visually represents a country's identity and values in a highly mediated global event (Melissen, 2005). According to Competitive Identity (CI) theory (Anholt, 2007), a nation's brand perception is heavily influenced by visual aesthetics, cultural symbolism, and historical relevance, all of which are central elements of OVID. The justification for including NIP as a key variable in this study is based on its direct link to aesthetic quality (harmony, naturalness, and elaborateness) and cultural relevance (cultural symbolism and historical relevance) in visual identity design. Studies in Gestalt psychology have shown that well-designed logos and emblems enhance brand perception by creating a sense of balance, coherence, and memorability (Arnheim, 1974). In the Olympic context, visual elements that align with the cultural and historical narratives of a host country foster a stronger sense of national identity among global audiences (Zhang et al., 2023). Empirical studies in nation branding have demonstrated that Olympic visual identity contributes to brand awareness, brand associations, and emotional identification, all of which shape national image perception (Kotler & Gertner, 2004). For example, the Beijing 2008 Olympic emblem, with its traditional calligraphic strokes and dynamic human figure, reinforced China's global image as both culturally rich and modern. Similarly, the Tokyo 2020 emblem, featuring the ichimatsu pattern, effectively conveyed Japan's fusion of tradition and innovation (Anholt, 2007). The inclusion of NIP in this study is thus supported by its theoretical and empirical significance in explaining how OVID influences the perception of a host country in the global context.

NATIONAL IMAGE-RELATED BEHAVIORAL INTENTIONS (NIRBI)

Beyond perception, national image influences behavioral responses, shaping audience intentions related to tourism, investment, and brand engagement (Ajzen, 1991). National Image-Related Behavioral Intentions (NIRBI) refers to how individuals act upon their perceptions of a country, particularly in terms of economic and social engagement. Research in the Theory of Planned Behavior (TPB) (Ajzen, 1991) suggests that attitudes toward a country, influenced by its national image, play a crucial role in shaping behavioral intentions. The inclusion of NIRBI in this study is justified by its alignment with prior findings in destination branding, consumer behavior, and international relations (Kotler & Gertner, 2004; Melissen, 2005). OVID serves as a critical determinant of NIRBI by creating emotional engagement and enhancing memory retention, which are essential for brand loyalty and long-term audience interaction (Zhang et al., 2023). Studies in visual cognition and brand psychology suggest that memorable and emotionally engaging brand identities lead to increased consumer attachment and behavioral commitment (Norman, 2004). In the Olympic context, the use of culturally embedded visual elements in OVID strengthens the likelihood of positive word-of-mouth recommendations, increased tourism interest, and stronger affinity for national brands (Kotler & Gertner, 2004). Empirical evidence further supports this proposition. The Beijing 2008 Olympics significantly boosted China's tourism and cultural influence, with a surge in international visitors following the event (Zhang et al., 2023). Likewise, the London 2012 Olympics reinforced the UK's image as an open and innovative country, leading to increased foreign direct investment and business collaboration (Melissen, 2005). By integrating

insights from nation branding, visual communication, and consumer behavior research, this study positions NIRBI as a key outcome variable in understanding how Olympic visual identity impacts national image construction.

1.4 Stimulus-Organism-Response (SOR) Model in Olympic Visual Identity Perception

Concept of the SOR Model

The Stimulus-Organism-Response (SOR) model was first introduced by Mehrabian and Russell (1974) to explain how environmental stimuli influence cognitive and affective responses, ultimately leading to behavioral outcomes. The model has been widely applied in consumer behavior (Jacoby, 2002), branding (Tan, 2020), and aesthetic perception (Russell, 1980), making it a suitable framework for evaluating how Olympic visual identity influences national image perception. In the context of Olympic branding, the SOR model conceptualizes Olympic visual identity design as a stimulus (S) that triggers cognitive and emotional responses in audiences (O), leading to changes in national image perception and behavioral engagement I. This model is particularly effective in explaining how aesthetic and cultural features in Olympic emblem design influence public perception of the host nation. Unlike traditional aesthetic models, the SOR framework provides a causal pathway that connects design attributes to cognitive processing and national image outcomes.

JUSTIFICATION FOR USING THE SOR MODEL IN THIS STUDY

Alternative theoretical frameworks, such as Norman's Emotional Design Model (2004), focus on user-product interaction, emphasizing visceral, behavioral, and reflective responses. However, Olympic branding operates at a macro-level, influencing collective audience perception rather than individual product experiences. While Emotional Design theory captures aesthetic engagement, it lacks a causal structure to explain how specific design elements trigger cognition and behavior. The SOR model, in contrast, has been empirically validated in branding and visual engagement research (Eroglu et al., 2003; Cheng et al., 2024), demonstrating its effectiveness in measuring cognitive and emotional reactions to design stimuli. Prior studies confirm that brand perception is shaped by both cognitive and affective pathways (Anholt, 2007; Dinnie, 2015), reinforcing the suitability of SOR for Olympic visual identity evaluation. The structured, stimulus-driven approach of SOR allows for a more systematic analysis of audience engagement compared to descriptive models of aesthetic response.

Model Construction and Variable Selection

The SOR model for Olympic visual identity perception consists of three core components: stimulus (S), organism (O), and response I. Each component is defined based on a combination of branding theories, semiotics, and cognitive psychology research, ensuring a comprehensive framework for evaluating Olympic emblem effectiveness.

Stimulus (S): Olympic Visual Identity Design

The stimulus in Olympic branding consists of two dimensions: aesthetic quality and cultural relevance. These dimensions are derived from semiotic theory (Peirce, 1931), aesthetic evaluation models (Arnheim, 1974), and brand perception studies (Kazmierczak, 2003).

Aesthetic Quality (AQ): Harmony (AQ1): Symmetry and balance enhance audience preference and facilitate cognitive processing (Arnheim, 1974). Naturalness (AQ2): Organic shapes and familiar patterns improve recognition and ease of interpretation (Henderson & Cote, 1998). Elaborateness (AQ3): Complexity and depth sustain engagement and increase memorability (Berlyne, 1971).

Cultural Relevance (CR): Cultural Symbolism (CR1): Semiotic markers reinforce national identity and increase cultural attachment (Peirce, 1931). Historical Relevance (CR2): Designs referencing cultural heritage enhance perceived authenticity (Kazmierczak, 2003).

Organism (O): Audience Cognitive Behavior

The organism stage represents how audiences cognitively and emotionally process Olympic branding. Cognitive engagement is crucial because national image perception is shaped by audience interaction with visual identity. Based on cognitive psychology (Paivio, 1986; Russell, 1980), this study identifies four mediating variables: Attention (O1): The ability of an emblem to capture visual focus influences brand recall and recognition (Itti & Koch, 2001). Comprehension (O2): The audience's ability to interpret symbolic meaning is influenced by cultural familiarity and cognitive schema (Marcus, 2003). Memory Retention (O3): Long-term recognition and association with Olympic branding enhance national identity messaging (Paivio, 1986). Emotion (O4): Aesthetic and cultural resonance elicit pride, nostalgia, or national attachment (Russell, 1980).

Response R: National Image Construction

The response stage captures how audience cognition and emotional engagement influence national image formation. Prior studies in nation branding (Anholt, 2007; Dinnie, 2015) confirm that well-designed Olympic branding strengthens a country's global perception. National Image Perception (R1): How the host country is perceived globally based on its Olympic branding. National Image-Related Behavioral Intentions (R2): Audience engagement in tourism, investment, or cultural discourse based on branding impact.

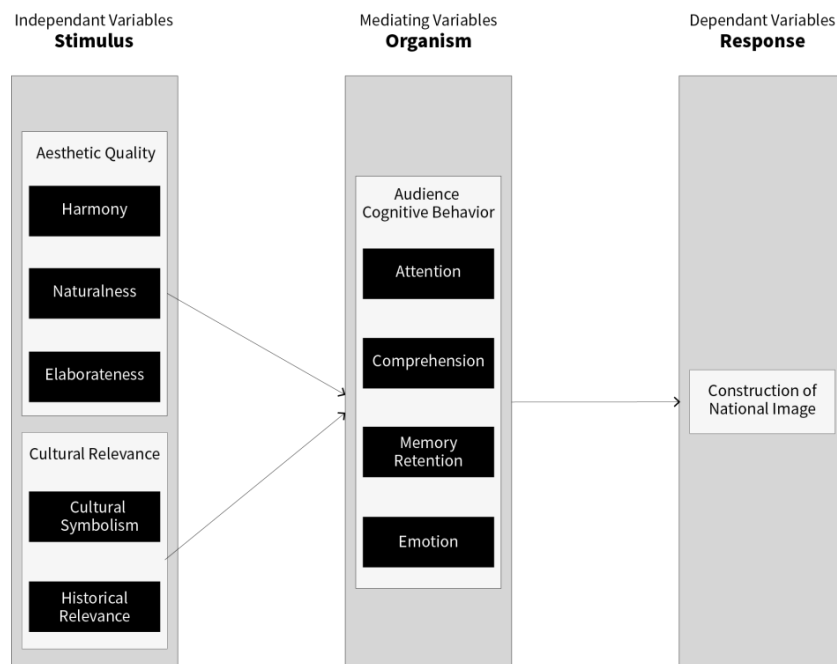


Figure2 Conceptual Framework of Olympic Visual Identity in Shaping National Image Perception Among Chinese Citizens

PATHWAY ANALYSIS OF VARIABLES

The relationships among OVID, audience cognitive behavior, and NI perception are systematically analyzed within the SOR model framework, with each stimulus component influencing audience attention, comprehension, memory retention, and emotion, which ultimately shape NI perception and related behavioral intentions. Prior research in visual attention and cognitive psychology (Itti & Koch, 2001; Paivio, 1986) suggests that aesthetic quality (AQ) influences how OVID elements capture audience focus and sustain engagement. For instance, harmony (AQ1) contributes to visual balance, which enhances cognitive fluency and ease of interpretation (Arnheim, 1974). Naturalness (AQ2) aids in recognition and emotional connection, as audiences tend to favor familiar and organic visual structures (Henderson & Cote, 1998). Elaborateness (AQ3) ensures that complex but structured designs stimulate cognitive engagement, increasing long-term recall and associative meaning (Berlyne, 1971). Similarly, cultural relevance (CR) serves as a critical determinant of audience cognitive processing, with cultural symbolism (CR1) reinforcing collective identity recognition and historical relevance (CR2) providing authenticity and credibility to NI construction (Peirce, 1931; Kazmierczak, 2003). Symbolic interpretation plays a key role in shaping audience comprehension and emotional response, particularly in the semiotic encoding of Olympic emblems. When OVID elements are deeply embedded in cultural narratives, audiences exhibit stronger cognitive association and emotional attachment, leading to a more favorable NI perception (Dinnie, 2015). Within the SOR pathway, audience attention (O1) and comprehension (O2) act as cognitive mediators, influencing how OVID is mentally processed and stored in memory. Memory retention (O3) ensures that the emblem's impact extends beyond the immediate Olympic event, reinforcing national branding over time (Paivio, 1986). The emotional dimension (O4), shaped by symbolism and aesthetic engagement, directly influences behavioral outcomes, such as audience participation, social discourse, and tourism interest (Russell, 1980). Ultimately, cognitive engagement with OVID leads to NI perception (R1) and national image-related behavioral intentions (R2). When Olympic branding successfully integrates aesthetic coherence and cultural depth, it enhances global perceptions of the host country, strengthening international recognition and soft power influence (Anholt, 2007). Conversely, design inconsistencies or lack of cultural resonance may weaken NI associations, limiting branding effectiveness. The SEM-based analysis in this study empirically tests these pathways, providing quantitative validation of the SOR model's application in Olympic branding research.

2. THEORETICAL FOUNDATIONS

This study applies Gestalt Psychology, Semiotics, Information Processing Theory (IPT), and Social Cognitive Theory (SCT) to analyze how Olympic Visual Identity Design (OVID) influences audience cognitive behavior and National Image (NI) perception within the Stimulus-Organism-Response (SOR) model framework.

The Stimulus-Organism-Response (SOR) Model

The SOR model provides a structured framework to understand how visual identity design impacts national image construction. Within this model, OVID serves as a stimulus (S), influencing audience cognitive behavior (O), which in turn shapes national image perception and behavioral intentions I. The inclusion of aesthetic quality and cultural relevance as stimuli aligns with findings in Gestalt Psychology and Semiotics, while attention, comprehension, memory retention, and emotion as organism variables align with IPT and SCT. These theoretical foundations support a comprehensive understanding of OVID's role in shaping national image perception through structured cognitive and emotional engagement.

Gestalt Psychology and Visual Perception

Gestalt principles explain how audiences perceive Olympic branding holistically, with symmetry, balance, and simplicity enhancing cognitive fluency and memorability (Arnheim, 1974). Olympic pictograms and emblems utilize figure-ground organization and proximity to ensure cross-cultural recognition (Palmer & Rock, 1994). This theory justifies the inclusion of harmony (AQ1), naturalness (AQ2), and elaborateness (AQ3) in the SOR model, demonstrating how aesthetic quality enhances audience attention, comprehension, and memory retention.

Semiotics and Meaning-Making in OVID

Semiotics explains how Olympic branding encodes cultural meaning through symbols (Peirce, 1931). Cultural symbolism (CR1) and historical relevance (CR2) strengthen NI perception by reinforcing national distinctiveness (Dinnie, 2015). Successful examples, such as Mexico 1968 and Beijing 2008 emblems, integrate traditional motifs and calligraphic elements to enhance audience engagement. This study evaluates how symbolic representation in OVID influences cognitive processing and NI construction.

Information Processing Theory and Cognitive Engagement

IPT clarifies how audiences encode and recall Olympic branding stimuli (Paivio, 1986). Dual-Coding Theory supports the dominance of visual over textual processing, explaining why strong pictorial elements enhance recognition (Sweller, 1988). Cognitive Load Theory suggests that overly complex emblems hinder comprehension, reinforcing the importance of optimized elaborateness (AQ3) (Berlyne, 1971). IPT justifies the inclusion of attention (O1), comprehension (O2), and memory retention (O3) as mediators in the SOR model, demonstrating how OVID influences audience cognition and NI perception.

Social Cognitive Theory and Audience Response

SCT explains how Olympic branding fosters audience engagement through observational learning and emotional attachment (Bandura, 1986). Perceived authenticity in OVID strengthens NI perception and behavioral intentions (Anholt, 2007). The Beijing 2008 and Tokyo 2020 branding strategies illustrate how emotionally resonant designs shape audience perception and engagement. This study incorporates SCT to assess how emotional response (O4) drives NI construction and audience participation. By integrating Gestalt Psychology, Semiotics, IPT, and SCT, this study establishes a structured framework for analyzing how OVID influences cognitive and emotional engagement with NI perception. These theories directly support the SOR model's stimulus, organism, and response components, ensuring a comprehensive approach to evaluating Olympic branding effectiveness.

Table4 Study on relevant theoretical

Theory	Core Concepts	Applications in This Study	References
Stimulus-Organism-Response (SOR) Framework	Explains how external stimuli (OVID) influence cognitive behavior and shape national image perception and behavioral intentions.	OVID acts as a stimulus affecting audience cognition, which in turn shapes national image perception and behavioral intentions.	Mehrabian & Russell (1974), Anholt (2007)
Gestalt Psychology and Visual Perception	Focuses on how symmetry, balance, and simplicity enhance cognitive fluency and memorability,	Gestalt principles justify the inclusion of harmony, naturalness, and elaborateness as	Arnheim (1974), Palmer & Rock (1994)

	influencing audience attention and comprehension.	key factors in Olympic branding effectiveness.	
Semiotics	Analyzes how Olympic branding encodes cultural meaning through symbols, reinforcing national distinctiveness and audience engagement.	Cultural symbolism and historical relevance in OVID contribute to national identity formation and audience engagement.	Peirce (1931), Dinnie (2015)
Information Processing Theory (IPT)	Explores how audiences encode, process, and recall branding stimuli, emphasizing visual over textual recognition and cognitive load management.	Attention, comprehension, and memory retention serve as mediators in the relationship between OVID and audience cognitive behavior.	Paivio (1986), Sweller (1988), Berlyne (1971)
Social Cognitive Theory (SCT)	Examines how observational learning, emotional attachment, and perceived authenticity in branding drive audience engagement and national image perception.	SCT supports the role of emotional response in strengthening audience engagement and national image perception.	Bandura (1986), Anholt (2007)

3. CONCLUSION

By applying the SOR model to Olympic branding, this study provides a structured framework for understanding how OVID shapes NI perception through cognitive and emotional pathways. The findings offer practical implications for Olympic organizers, branding professionals, and policymakers, emphasizing the strategic role of visual identity in shaping global perceptions of the host nation. Future research should further explore the impact of new media environments on OVID, expanding the scope of sports branding and national identity construction in international mega-events.

THEORETICAL CONTRIBUTIONS

This study integrates Gestalt Psychology, Semiotics, Information Processing Theory (IPT), and Social Cognitive Theory (SCT) within the Stimulus-Organism-Response (SOR) model to systematically examine how Olympic Visual Identity Design (OVID) influences National Image (NI) perception. By incorporating aesthetic quality (AQ) and cultural relevance (CR) as key stimulus variables, this research elucidates how attention (O₁), comprehension (O₂), memory retention (O₃), and emotion (O₄) mediate audience responses, shaping NI perception and related behavioral intentions. This study advances Olympic branding research by establishing a quantifiable evaluation framework, enhancing the predictability and explanatory power of how visual identity contributes to nation branding. Additionally, it highlights the role of semiotic representation in cross-cultural communication, demonstrating how symbolic and aesthetic elements in OVID influence international audience engagement. The findings offer theoretical guidance for designing Olympic visual identity to reinforce national recognition and soft power strategies in global sports branding.

RESEARCH LIMITATIONS AND FUTURE DIRECTIONS

This study primarily examines the cognitive and emotional pathways of OVID in shaping NI perception, without fully accounting for media framing, public discourse, and geopolitical influences. Future research should incorporate media analysis and discourse studies to explore how Olympic branding operates within global communicative frameworks. Additionally, as a conceptual study, this research lacks empirical validation, necessitating quantitative testing through Structural Equation Modeling (SEM) and eye-tracking experiments to analyze how OVID captures audience attention and influences perception over time. Given the absence of cross-cultural comparisons, further studies should investigate how cultural differences moderate audience responses to Olympic branding, offering insights into the adaptability of OVID across diverse national contexts. With the rise of digital and interactive branding, future research should also examine how emerging technologies such as Augmented Reality (AR) and Virtual Reality (VR) enhance the engagement and effectiveness of OVID in contemporary Olympic marketing.

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