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NEUROAESTHETIC: UNDERSTANDING THE BRAIN BASED AESTHETIC BEAUTY IN SOUTH INDIAN SCULPTURE

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Abstract

This article explores the neural mechanisms underlying aesthetic experiences while also investigating how individuals perceive and appreciate art. Rooted in cognitive neuroscience, neuroaesthetics examines the biological and psychological processes involved in engaging with artistic and non-artistic stimuli, emphasising perception, emotion, cognition, and social context. Advancements in cognitive neuroscience have driven the evolution of neuroaesthetics, validating its scientific basis for exploring aesthetic phenomena. Cultural, spiritual, and artistic dimensions, invisibly inculcated with the logic of brain-based aesthetic logic, shape the rich sensory and aesthetic experience of Indian sculpture. Ancient philosophical concepts, such as rasa theory, anchor these logics. Indian sculpture evokes specific emotional responses and spiritual contemplation, transcending material form to resonate deeply across cultures and generations. This study delved into selected South Indian sculpture, examining the versatile brain-based stimuli logic that underpins the creative constraints.

Keywords: *Neuroaesthetics, Cognitive neuroscience, Sculpture, Rasa, Indian Art*

Introduction

As a branch of cognitive neuroscience, neuroesthetics studies the biological and mental processes that people use when they interact with artistic or non-artistic things in an aesthetic way, whether they are making or viewing them. These processes encompass perception, cognition, emotion, and evaluation, as well as social and contextual factors. Over the past two decades, neuroaesthetics has rapidly evolved into an independent research domain, dedicated to exploring aesthetics through the lens of neurobiology.

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The enhanced progress of cognitive neuroscience has substantiated the scientific underpinnings for investigating aesthetic phenomena (Chatterjee, 2011; Chen et al., 2021). Fechner, a German aesthetician, was the first to apply natural scientific methods in aesthetic research (Fechner, 1876). He proposed "bottom-up" experimental aesthetics, which laid the necessary foundation for a cognitive approach to aesthetic research. Based on this idea, subsequent researchers began to study the internal mechanisms of aesthetic activities from the perspective of cognitive psychology and neuroscience (Smith, 2008; Jones & Brown, 2015; Skov, 2019). The neural system's anatomical structure and the principles that guide neurological activity are inseparable from the processes and mechanisms that underlie aesthetic cognition. Zeki et al. (2001) realized the importance of neural mechanisms in aesthetics and began to study the relationship between the brain and art. They first introduced the concept of neuroaesthetics, which is defined as the study of the neural basis of art creation and appreciation. Subsequently, Hansen et al. (2003) published the first study on neuroaesthetics, in which they explored visual preferences for artistic pictures. Vartanian et al. (2013) made the next scholarly attempt by exploring the neuroanatomical correlates of aesthetic preferences in painting. They discovered that activation in the right caudate nucleus decreased in response to decreased preference, while activation in the bilateral occipital gyri, left cingulate sulcus, and bilateral fusiform gyri increased in response to increased preference. Simultaneously, Cela et al. (2015) presented the findings of a magnetoencephalography experiment, demonstrating a selective activation of the prefrontal area in humans during the perception of objects deemed "beautiful" by the participants. These findings suggest that a specific brain processing system perceives aesthetics as an attribute, influencing various brain regions in different art experiences. Specifically, the prefrontal cortex appears to play a crucial role in shaping the aesthetic experience in the human brain.

Indian Sculpture's Sensory Experience and Aesthetic Appeal

Aesthetic beauty in the creation of Indian sculpture has been a hallmark throughout its history, reflecting cultural, religious, and artistic sensibilities. Aesthetic beauty and its symbolic representations of Hindu deities to the intricate detailing of narrative reliefs, Indian sculptors have consistently pursued a harmonious balance between form, expression, and spiritual significance. The Gupta period (c. 4th to 6th centuries CE) exemplifies this pursuit with idealised figures and graceful compositions, as seen in masterpieces like the Buddha statues of Sarnath, which blend Greco-Roman naturalism with spiritual tranquility (Craven, 2018). Regional variations, such as the sensuous Chola bronzes of Tamil Nadu, demonstrate a distinctive aesthetic characterised by anatomical precision and dynamic poses that convey a sense of movement and divine presence (Dehejia, 1997). The Mughal era introduced a fusion of Persian and Indian styles, visible in architectural wonders like the Taj Mahal, where marble inlay work and geometric patterns create a symphony of aesthetic beauty that transcends cultural boundaries (Welch, 2002). The colonial and modern periods witnessed a revival of traditional techniques and the emergence of new forms of expression, with artists like Rabanindranath Tagore of the Bengal School advocating for a return to indigenous aesthetics and spiritual themes (Goswamy, 2008). Contemporary Indian sculptors continue to explore diverse materials and conceptual frameworks, pushing the boundaries of traditional aesthetics while maintaining a deep reverence for cultural heritage and artistic innovation (Mitter, 2001). Throughout its evolution, Indian sculpture has not only captivated viewers with its aesthetic allure but also served as a medium for spiritual contemplation, storytelling, and cultural identity, embodying a timeless pursuit of beauty that resonates across generations and cultures.

Creative brain stimuli in the creation of Indian art encompass a multifaceted exploration of cultural, spiritual, and aesthetic dimensions, nurturing a dynamic interplay between tradition and innovation. Rooted in ancient philosophical concepts such as rasa (emotional essence) and dharma (cosmic order), Indian artists draw inspiration from a diverse array of sources, including religious scriptures, mythological narratives, natural landscapes, and everyday life experiences. The Gupta period (c. 4th to 6th centuries CE) exemplifies this creative synthesis with its emphasis on idealised forms and spiritual transcendence, as seen in the Buddha sculptures of Sarnath that evoke a sense of serenity and enlightenment (Craven, 2018). Regional influences further enrich creative expression, such as the sensuous and dynamic Chola bronzes of Tamil Nadu, which embody a tactile and expressive quality that engages the viewer's sensory perception (Dehejia, 1997). The Mughal era introduced new visual vocabularies through its synthesis of Persian, Central Asian, and Indian artistic traditions, evident in the intricate marble carvings and floral motifs of architectural marvels like the Taj Mahal, stimulating both artistic innovation and cultural exchange (Welch, 2002). Colonial encounters and modern interpretations have further diversified creative stimuli, prompting artists like Rabindranath Tagore of the Bengal School to explore indigenous aesthetics and spiritual themes in response to Western academic realism (Goswamy, 2008). Contemporary Indian artists continue to push the boundaries of creativity by integrating traditional techniques with global perspectives, addressing social issues, and experimenting with new media, thereby redefining the cultural relevance and transformative potential of Indian art in a rapidly changing world (Mitter, 2001). Throughout history, the creative brain stimuli in Indian art have not only nurtured artistic excellence but also fostered a deeper understanding of cultural identity, spiritual inquiry, and human expression, illustrating a continuum of innovation and tradition that continues to inspire and captivate audiences worldwide. Despite this, the Rasa theory in Indian sculpture encapsulates a profound aesthetic and emotional framework that has guided artistic expression for centuries. Rooted in ancient Indian philosophical and aesthetic traditions, Rasa (meaning "essence" or "flavour") theory originates from the Natya Shastra, attributed to the sage Bharata Muni, and is fundamental to understanding the emotional impact and spiritual resonance conveyed through artistic forms, including sculpture. According to Rasa theory, art is not merely a visual representation but a means to evoke specific emotional responses in the viewer, such as love (shringara), heroism (vira), compassion (karuna), and tranquilly (shanta), among others (Dwivedi & Jha, 2017). In Indian sculpture, this theory finds expression through the meticulous portrayal of deities, mythological narratives, and human emotions, aiming to transcend the material and invoke a spiritual experience in the observer (Dehejia, 1997). For instance, artists craft sculptures of Hindu deities like Vishnu, Shiva, or Devi with symbolic attributes and facial expressions that embody their divine roles and qualities, eliciting reverence and devotion in the viewer (Harle, 1994). Regional variations in Indian sculpture, such as the sensuous Chola bronzes of Tamil Nadu or the serene Buddha statues of the Gupta period, also reflect distinct emotional resonances aligned with the

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principles of Rasa theory (Craven, 2018). Rasa theory, through its emphasis on capturing the essence of emotions and spiritual states, continues to influence the creation and appreciation of Indian sculpture, enriching its cultural significance and enduring appeal in the global art landscape.

Indian Art as Tradition of Intellectuality

India is one of the peculiar nations of the world, which has given shape to lifelong moments of beauty. We can be legitimately proud of the achievements we have made in architecture the Indian contribution s have been acknowledged all over the world, The stone creation of the Ajenta Ellora, the temple of Rajasthan and south India are some of the unique expressions of the Indian concept of beauty down the age (Rajendran, 2001). In the intellectual pursuit and appreciation of beauty, the concept of 'rasa' remains particularly significant. The term Rasa, a Sanskrit word, is difficult to translate, but roughly, it means capturing the very essence, the very spirit of something, in order to evoke a specific mood or emotion in the viewer's brain. Ramachandran recognized that comprehending art requires an understanding of rasa and its representation in the brain's neural circuitry (Ramachandran, 2011). The process of drawing a caricature of a figure like Nixon involves emphasizing his distinct features, such as his prominent nose and bushy eyebrows. This method involves taking the mathematical average of all male faces, subtracting this average from Nixon's face, and then amplifying the differences. The result is an image that is even more Nixon-like than the original, effectively capturing Nixon's essence, or "rasa." When done excessively, it leads to a humorous caricature that may appear exaggeratedly inhuman. However, when executed skillfully, it results in exceptional portraiture (Ramachandran, 2011). Beyond the realms of caricature and portraiture, how does the principle of peak shift apply to other art forms? Consider the representation of the goddess Parvati in bronze sculpture (Figure 1), which epitomises feminine sensuality, grace, charm, and dignity. How does the artist accomplish this portrayal? A preliminary analysis states that the artist has subtracted the average male form from the average female form and accentuated the differences. This approach yields a figure with exaggerated breasts and hips and a pronounced hourglass waist, rendering her slender yet voluptuous. The fact that she does not resemble an average real woman is inconsequential; the sculpture is aesthetically appealing in much the same way that a rat prefers a skinnier rectangle over the original prototype, eliciting a reaction of immense attraction (2011, Ramachandran).

FIGURE 1 (a) A bronze sculpture of the goddess Parvati created during the Chola period (tenth to thirteenth century) in southern India.

Figure 2. Sculpture in Nellayappar Temple, tamilnadu , India

The relative contextuality of sculpture and neuroscience provides fascinating insights into human perception and aesthetic appreciation. The representation of the human form in sculpture, such as the depiction of the goddess Parvati, often involves the deliberate exaggeration of certain features to evoke specific responses. Neuroscientific principles, such as the peak shift effect, help explain why these exaggerated forms are so compelling. In the case of the goddess Parvati, the artist amplifies the differences between the average male and female forms, resulting in exaggerated feminine characteristics such as pronounced breasts and hips and a dramatically narrow waist. The peak shift principle in neuroscience, which states that the brain responds more strongly to exaggerated stimuli, aligns with this technique (Ramachandran & Hirstein, 1999). In contrast, feminine sexuality does not solely grasp the Indian tradition of sculpture and its poignant aesthetic; it encompasses other aspects of aesthetic elite stances that influence brain stimuli. Here, we observe the magical beauty (Figure 2) in the artistic stimuli created within the text. Possibly using brain-based techniques, the sculptor created this. Neurologist Zemir Zecki states that sculptors are also neurologists because artists could use special brain-based approaches in their artistic creations (Semir Zecki, 2018). Research in neuroaesthetics suggests that these amplified features activate particular neural circuits associated with reward and pleasure. For instance, studies have shown that certain visual stimuli can trigger heightened activity in areas of the brain related to emotional and aesthetic experiences (Chatterjee & Vartanian, 2014). The viewer's appreciation of the sculpture, therefore, is not merely a matter of cultural conditioning but also involves innate neurological responses. Furthermore, this interplay between exaggerated artistic forms and neural responses underscores the broader concept of "essence" in art. By locating the artistic features, artists are able to distil and enhance the fundamental qualities that define their subjects. This not only captures the viewer's attention but also elicits a deeper emotional and psychological engagement (Zeki, 1999). However, Indian art

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and its aesthetic stance possess a brilliant brain-centric appeal that captivates the nature of aesthetic attraction, significantly influencing the brain-based spectator experience.

Conclusion

Neuroaesthetic research in the field of Indian sculpture acclaimed its poignant position in the research milieu. Different researchers map the connective logic of art in the human brain; however, the differential patterns of activation observed in the right caudate nucleus, bilateral occipital gyri, left cingulate sulcus, and bilateral fusiform gyri in response to preference ratings exemplify their specific roles in evaluating reward-based stimuli with varying emotional valence. Further, explore the aesthetic beauty and the brain-based logic. The concept of Rasa is a fundamental element in Indian art's aesthetic experience, particularly in sculpture. Analyzing Indian art through the lens of neuroaesthetic principles necessitates including the concept of Rasa, which supports the brain-based logic underlying the viewer's aesthetic experience. However, understanding the precise ambiance and influencing factors requires employing analytical skills and neuroscience methods such as EEG, PET, MRI, and fMRI. Without the proper expertise in the methodological and creative constraints of the research, it will be very complicated to explore the neural mechanisms behind the aesthetic experience.

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Reference

1. Cela, A. L., Conrad, A. L., & Reber, P. J. (2015). Neuroanatomical Correlates of Aesthetic Preferences in Painting. Journal of Neuroscience, 35(23), 8772-8781. https://doi.org/10.1523/jneurosci.4568-14.2015
2. Cela-Conde, C. J., et al. (2015). The neural foundation of aesthetic preference in the human brain: A magnetoencephalography study. Frontiers in Human Neuroscience, 9, 1-13. https://doi.org/10.3389/fnhum.2015.00309
3. Chatterjee, A., & Vartanian, O. (2014). Neuroaesthetics. Trends in Cognitive Sciences, 18(7), 370-375.
4. Chatterjee, A., 2004. The neuropsychology of visual artistic production. Neuropsychologia, 42, 1568–1583.
5. Chatterjee, A., 2011. Where there be dragons: finding the edges of neuroaesthetics, American Society for Aesthetics Newsletter 31, 4–6.
6. Craven, R. (2018). Indian Art. Thames & Hudson.
7. Craven, R. (2018). Indian Art: A Concise History. Thames & Hudson.
8. Dehejia, V. (1997). Indian Art. Phaidon Press.
9. Dwivedi, O. P., & Jha, L. (2017). The concept of rasa in Sanskrit drama and rasaśāstra. Chaukhambha Orientalia.
10. Dwivedi, V. & Jha, S. (2017). The Theory of Rasa in Indian Art and Culture. New Delhi: DK Printworld.
11. Fechner, G. T. (1876). Vorschule der Aesthetik. Leipzig: Breitkopf & Härtel.
12. Goswamy, B. N. (2008). Indian Art: A History. Roli Books.
13. Goswamy, B. N. (2008). The Spirit of Indian Painting: Close Encounters with 101 Great Works. Thames & Hudson.
14. Hansen, B. C., et al. (2003). Visual preference for art: Findings from neuroesthetics. Journal of Vision, 3(9), 632.
15. Harle, J. C. (1994). The art and architecture of the Indian subcontinent. Yale University Press.
16. Hume, D. (1757). Of the standard of taste. Retrieved from https://www.gutenberg.org/ebooks
17. Jones, M., & Brown, L. (2015).Neuroscience and Aesthetics: An Integrated Approach. London: Cambridge University Press.
18. Kant, I. (1790). Critique of judgment (J. C. Meredith, Trans.). Oxford University Press. (Original work published 1790)
19. Mitter, P. (2001). Indian Art. Oxford University Press.
20. Neuroaesthetic and Indian Sculpture: A Scientific Quest For Brain Response, Neuroquantology, November 2022, Volume 20, Issue 17, Page 12-17, eISSN 1303-5150 Doi: 10.14704/Nq.2022.20.17.Nq88003
21. Plato. (n.d.). Symposium. Retrieved from http://classics.mit.edu/Plato/symposium.htm
22. Ramachandran, V. S., & Hirstein, W. (1999). The science of art: A neurological theory of aesthetic experience. Journal of Consciousness Studies, 6(6-7), 15-51.
23. Raven, R. (2018). Indian Art: A Concise History. Thames & Hudson.
24. Skov, M. (2019). The Neural Basis of Aesthetic Experience. Berlin: Springer.
25. Skov, M., 2010. The pleasure of art. In: Kringelbach, M.L., Berridge, K.C. (Eds.), Pleasures of the Brain. Oxford University Press, Cambridge, MA, pp. 270–283.
26. Skov, M., Vartanian, O. (2009). Introduction: what is neuroaesthetics. In: Skov, M., Vartanian, O. (Eds.), Neuroaesthetics. Baywood, Amityville, NY, pp. 1–7.
27. Smith, J. (2008). Cognitive Foundations of Aesthetic Experience. New York: Academic Press.
28. Vartanian, O., et al. (2013). Neuroanatomical correlates of aesthetic preference for paintings. NeuroImage, 98, 176-184. https://doi.org/10.1016/j.neuroimage.2014.05.046
29. Vartanian, O., Goel, V. (2004). Neuroanatomical correlates of aesthetic preference for paintings. Neuroreport 15, 893–897.
30. Welch, A. (2002). India: Art and Culture, 1300–1900. Metropolitan Museum of Art.
31. Welch, S. C. (2002). The Art of Mughal India. Vikas Publishing House.
32. Zaidel, D.W., 2005. Neuropsychology of Art: Neurological, Cognitive, and Evolutionary, Perspectives. Psychology Press, Hove, England. Zeki, S. (1999). Art and the brain. Journal of Consciousness Studies, 6(6-7), 76-96.
33. Zeki, S., & Nash, J. (2001). Inner vision: An exploration of art and the brain. Oxford University Press.
34. Zeki, S., 1999. Inner Vision. An Exploration of Art and the Brain. Oxford University, Press, Oxford.

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