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Neuroesthetics and its Challenges

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Abstract

Neuroscience is an experimental research field in scientific study of the nervous system. Traditionally, neuroscience has been seen as a branch of biology. However, it is currently an interdisciplinary research field that collaborates with other fields such as chemistry, computer science, engineering, linguistics, mathematics, medicine and allied disciplines, philosophy, physics, as well as psychology. And it has a variety of applications. Neuroscientist's studies in the early of 20th century show that certain regions of brain are responsible for specific functions. Thus, some researchers in the field of neuroscience are trying to detect those parts of the human brain that response to perception of beauty and thereby to make it possible to ensure that the experience of beauty is quantifiable and measurable. This new field is called neuroaesthetics. Neuroesthetics is a relatively recent sub-discipline of empirical aesthetics. Empirical aesthetics takes a scientific approach to the study of aesthetic perceptions of art and music. Neuroesthetics received its formal definition in 2002 as the scientific study of the neural bases for the contemplation and creation of a work of art. Neuroesthetics uses neuroscience to explain and understand the aesthetic experiences at the neurological level. The topic attracts scholars from many disciplines including neuroscientists, art historians, artists, and psychologists. Theorists of neuroaesthetics claim that tying in the human experience, the determination of specific brain circuitry involved can help to pinpoint the origin of the human responses through the use of brain imaging in experimentation. It is felt that neuroscience is a very promising path for the search for the quantified evaluation of art. With the aim of discovering general rules about aesthetics, one approach is the observation of subjects viewing art and the exploration of the mechanics of vision. It is proposed that pleasing sensations are derived from the repeated activation of neurons due to primitive visual stimuli such as horizontal and vertical lines. Neuroaesthetics is a relatively young field within cognitive neuroscience, concerned with the neural underpinnings of aesthetic experience of beauty, particularly in visual art. Neuroscientific investigations have approached this area using imaging and neurophysiological techniques, such as functional magnetic resonance (fMRI), magnetoencephalography (MEG) and electroencephalography (EEG). The results produced so far are very heterogeneous. This research is trying to determine the scope of the science and also to express the challenges faced with by this claim that neuroaesthetics can request to main question of "what is art?" In the present review, we discuss that aesthetic experience is a multilevel process exceeding a purely visual analysis of artworks. The research method is analysis of the results and achievement of neuroaesthetics' experiences as well as critiques and views expressed by scientists and theorists. The results of this research explain that perception of beauty, is not merely a visual perception and a strict biological reaction, but also other various factors such as historical, cultural and conceptual perception factors are effective to artistic perception and understanding and appreciation of art.

Keywords: Neuroaesthetics, Perception of beauty, Visual brain, Aesthetics.