

Is the beauty of a sculpture in the brain of the beholder?

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Is there an objective biological basis for the experience of beauty in art? Or is aesthetic experience entirely subjective? This question has been addressed in a paper published in this week's PLoS ONE, Cinzia Di Dio, Emiliano Macaluso and Giacomo Rizzolatti. The researchers used fMRI scans to study the neural activity in subjects with no knowledge of art criticism, who were shown images of Classical and Renaissance sculptures.

The 'objective' perspective was examined by contrasting images of Classical and Renaissance sculptures of canonical proportions, with images of the same sculptures whose proportions were altered to create a comparable degraded aesthetic value.

In terms of brain activations, this comparison showed that the presence of the "golden ratio" in the original material activated specific sets of cortical neurons as well as (crucially) the insula, a structure mediating emotions. This response was particularly apparent when participants were only required to observe the stimuli; that is, when the brain reacted most spontaneously to the images presented.

The 'subjective' perspective was evaluated by contrasting beautiful vs. ugly sculptures, this time as judged by each participant who decided whether or not the sculpture was aesthetic. The images judged to be beautiful selectively activated the right amygdala, a structure that responds to learned incoming information laden with emotional value.

These results indicate that, in observers naïve to art criticism, the sense of beauty is mediated by two non-mutually exclusive processes: one is based on a joint activation of sets of cortical neurons, triggered by parameters intrinsic to the stimuli, and the insula (objective beauty); the other is based on the activation of the amygdala, driven by one's own emotional experiences (subjective beauty). The researchers conclude that both objective and subjective factors intervene in determining our appreciation of an artwork.

The history of art is replete with the constant tension between objective values and subjective judgments. This tension is deepened when artists discover new aesthetic parameters that may appeal for various reasons, be they related to our biological heritage, or simply to fashion or novelty. Still, the central question remains: when the fashion and novelty expire, could their work ever become a permanent patrimony of humankind without a resonance induced by some biologically inherent parameters?

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