

THE AESTHETIC LEGACY: EPIGENETICS AS A BRIDGE BETWEEN CULTURE AND GENES?

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Epigenetics investigates the way in which the functioning and expression of genes is modified by the **environment**

intra-generational epigenetics: modifications through epigenetic marks, induced by the environment during the individual's lifetime, which produce a modified phenotype

Recent research in empirical aesthetics has highlighted the role played by **contextual** factors in aesthetic experience. Leder, Nadal (2014) argued that understanding how and to what extent **context** and **environment** influence our aesthetic experience is one of the main challenges facing contemporary empirical aesthetics.

trans-generational or intergenerational epigenetics: inheritance of a modified phenotype from the parental generation, without alterations in the DNA sequence

Does epigenetics play a role in aesthetic appreciation and taste?

Probably yes! Consider for instance (1):

Human mirror system: not a fixed machinery to establish associations between observed and performed actions, rather a variable neural circuitry subject to **epigenetic** modification through the individual's history of interactions with **environmental** conditions (Ferrari et al. 2013). It has been notoriously argued that human mirror system plays a role in aesthetic experience and appreciation.

Probably yes! Consider for instance (2):

Mice taught to fear a particular odour (acetophenone) **transmit this fear both to their offspring and the next generation**. Molecular analyses showed that the gene coding for the receptor Olfr151 (which recognizes acetophene) was differentially demethylated (Dias, Ressler 2014). May it be possible that also our parents' or even perhaps grandparents' aesthetic preferences and tastes exercise an influence on our own aesthetic experience?

Why epigenetics in empirical aesthetics?

Promises and benefits:

- It may help open a window on the **individual** component of aesthetic experience, even below the level of networks of regions.
- It may help definitely **overcome** the burdensome dichotomy between Nature and Nurture
- A first step towards the **"integration** of empirical aesthetics with the neurobiological and evolutionary perspectives on art and aesthetics, forging a true cognitive, neuro- and evolutionary science of aesthetics" (Leder, Nadal 2014)

...However, be careful!

Cautions and limitations:

- **Animal studies** - and, among animals, those ones with a short generation time - are the most effective means of understanding genes regulation.
- The study of trans-generational **inheritance** requires an extended investment of time, with the maintenance and breeding of more than one generation of organisms.
- The **mechanisms** through which the effects of environmental exposure become embedded in human germ cells are still unclear.

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