

Parenting & Environmental Influence

Passive: parents and siblings. Children receive genotypes that correlate with their **family environment** (e.g. musicality)
Evocative: anybody. Individuals are **reacted to in response** to their genetic propensities (e.g. musical child – more attention from music teacher).
Active: anybody or anything. Individuals **seek environments** correlated with their genetic propensities (e.g. musical child – sign up for musical activities)

"The idea that we can make our children turn out any way we want is **an illusion**. Give it up. Children are not empty canvases on which parents can paint their dreams."

Gene-Environment Interplay
A genotype-environment correlation (rGE) can show genetic influence on exposure to environments.

This accounts for most environmental influence on traits/behaviours, as children living in the same family lead surprisingly separate lives.

Better to measure a specific environmental variable that causes MZ twins to differ (Maternal expressed emotion (Caspi et al. 2004)).

Estimated by the extent to which MZ twins are different.

The Nurture Assumption (Judith Harris, 1998)
"Parents matter less than you think and peers matter more."

Non-Shared Environment
Environmental factors that make family members different.

Genetically Informative Design Studies

These are often paradoxically the best way to demonstrate the importance of the environment.

(Parenting can in part reflect parent's and child's genes).

MZ twins are separate from a fertilised egg splitting in to two. DZ twins are effectively two different eggs fertilised by two different sperm.

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Shared Environment

Measured if concordance between DZ and MZ is higher than 50%.

We assume parenting is similar across children and people experience everything similarly.

Sometimes we assume shared environmental variables are actually non shared. Divorce might actually drive differences between people and they might react differently. Parents may be inconsistent with their discipline; the parents are the same but they discipline differently according to child.

Twin Studies

What makes twins similar?

Identical Similarity: Shared genes (100%), share environment.

DZ twins: Shared genes (50%) and shared environment.

Shared Environmental Influence: When DZ twins are more similar than they would be expected by genetic relatedness alone.

What makes twins different?

Non Shared Environment: This is the extent to which MZ twins are not identical. (this may arise through different friendship groups).

Adoption Studies

This studies influences of genetic relatives and environmental relatives. They are useful for demonstrating shared environmental effects.

E.g. Sibling Adoption Design: Comparison of adoptive and biological sibling pairs. What makes adoptive siblings similar (shared environment only) and what makes biological siblings similar (50% genes, shared environment).