

Genetic Influences on Intelligence

1. Take Cornell notes on the following:
2. Then answer the question, **How have genetic and environmental influences shaped your intelligence? (7-10 sentences) **Answer this question at the bottom of your Cornell notes.**

Intelligence runs in families. But this concept alone is dangerous, it could lead to those on top believing their intellectual birthright justifies their social positions.

Twin and Adoption Studies

The intelligence scores of identical twins raised together are virtually as similar as those of the same person taking the test twice. Fraternal twins, who share only half their genes, have much different IQ scores.

Heritability of intelligence--the extent to which intelligence test scores variation can be attributed to genetic variation--range from 50 to 80%.

Brain scans reveal that identical twins' brains are built and function similarly. They have similar gray and white matter volume. Their brains even show similar activity while doing mental tasks.

Are there known genes for genius?

Today's researchers have identified chromosomal regions important to intelligence, and they have pinpointed specific genes that seemingly influence variations in intelligence and learning disorders. But intelligence appears to be **polygenetic, involving many genes, with each gene accounting for much less than 1 percent of intelligence variations.**

The Importance of Environment

When environments vary widely, as they do among children of less-educated parents, environmental differences are more predictive of intelligence scores. Studies show that **adoption enhances the intelligence scores of mistreated or neglected children.**

In an Iranian orphanage, a typical child could not sit up unassisted at age 2 or walk at age 4. **The little care infants received was not in response to crying, cooing, or other behaviors, these acts were ignored.** The children became passive glum lumps. **Extreme deprivation was bludgeoning (decreased) native intelligence**--a finding confirmed by other studies of children raised in poorly run orphanages in Romania and elsewhere.

Schools with many poverty-level children often have less-qualified teachers, which predicts lower achievement scores. Malnutrition also plays a role.

Schooling and Intelligence

Schooling is one intervention that pays intelligence score dividends. **Schooling and intelligence interact, and both enhance later income.** And what we accomplish with our intelligence depends also on our own beliefs and motivation. **Motivation even affects intelligence test performance.** Four dozen studies show that, when promised money for doing well, adolescents scored higher.