



## Nature vs. Nurture in Psychology

By [Saul McLeod](#), updated 2018

### Key Takeaways

- The nature-nurture debate is concerned with the relative contribution that both influences make to human behavior, such as personality, cognitive traits, temperament and psychopathology.
- Nature is what we think of as pre-wiring and is influenced by genetic inheritance and other biological factors.
- Nurture is generally taken as the influence of external factors after conception, e.g., the product of exposure, life experiences and learning on an individual.
- Behavioral genetics has enabled psychology to quantify the relative contribution of nature and nurture with regard to specific psychological traits.
- Instead of defending extreme nativist or nurturist views, most psychological researchers are now interested in investigating how nature and nurture interact in a host of qualitatively different ways.

### Approaches to Psychology

Nature

Nurture

#### Biological Approach

Focus on genetic, hormonal, and neuro-chemical explanations of behavior.

#### Psychoanalysis

Innate drives of sex and aggression (nature). Social upbringing during childhood (nurture).

#### Cognitive Psychology

Innate mental structures such as schemas, perception and memory and constantly changed by the environment.

#### Humanism

Maslow emphasized basic physical needs. Society influences a person's self concept.

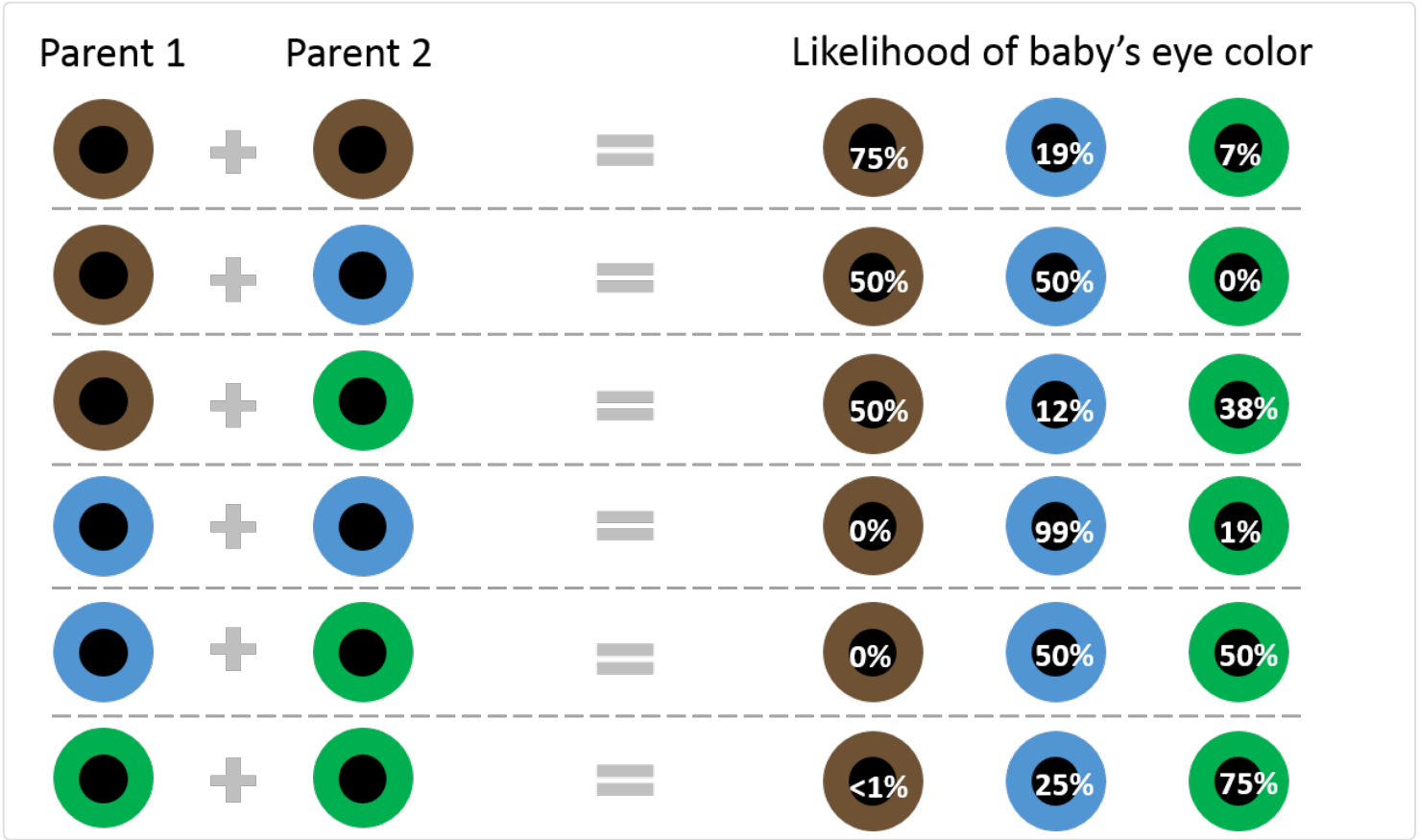
#### Behaviorism

All behavior is learned from the environment through conditioning.

# Nativism (Extreme Nature Position)

It has long been known that certain physical characteristics are biologically determined by genetic inheritance.

Color of eyes, straight or curly hair, pigmentation of the skin and certain diseases (such as Huntingdon's chorea) are all a function of the genes we inherit.



These facts have led many to speculate as to whether psychological characteristics such as behavioral tendencies, personality attributes, and mental abilities are also “wired in” before we are even born.

Those who adopt an extreme hereditary position are known as nativists. Their basic assumption is that the characteristics of the human species as a whole are a product of evolution and that individual differences are due to each person's unique genetic code.

In general, the earlier a particular ability appears, the more likely it is to be under the influence of genetic factors. Estimates of genetic influence are called heritability.

Examples of an extreme nature positions in psychology include Chomsky (1965), who proposed language is gained through the use of an innate language acquisition device. Another example of nature is Freud's theory of aggression as being an innate drive (called Thanatos).

Characteristics and differences that are not observable at birth, but which emerge later in life, are regarded as the product of maturation. That is to say, we all have an inner “biological clock” which

switches on (or off) types of behavior in a pre-programmed way.

The classic example of the way this affects our physical development are the bodily changes that occur in early adolescence at puberty. However, nativists also argue that maturation governs the emergence of [attachment in infancy](#), [language acquisition](#) and even [cognitive development](#) as a whole.

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## Empiricism (Extreme Nurture Position)

At the other end of the spectrum are the environmentalists – also known as empiricists (not to be confused with the other empirical / [scientific approach](#)).

Their basic assumption is that at birth the human mind is a tabula rasa (a blank slate) and that this is gradually “filled” as a result of experience (e.g., [Behaviorism](#)).

From this point of view, psychological characteristics and behavioral differences that emerge through infancy and childhood are the results of learning. It is how you are brought up (nurture) that governs the psychologically significant aspects of child development and the concept of maturation applies only to the biological.

For example, [Bandura's \(1977\) social learning theory](#) states that aggression is learned from the environment through observation and imitation. This is seen in his famous [Bobo doll experiment](#) (Bandura, 1961).



Also, [Skinner \(1957\)](#) believed that language is learnt from other people via behavior shaping

techniques.

Freud (1905) stated that events in our childhood have a great influence on our adult lives, shaping our personality. He thought that [parenting is of primary importance to a child's development](#), and the family as the most important feature of nurture was a common theme throughout twentieth-century psychology (which was dominated by environmentalists theories).

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## Behavioral Genetics

Researchers in the field of behavioral genetics study variation in behavior as it is affected by genes, which are the units of heredity passed down from parents to offspring.

“We now know that DNA differences are the major systematic source of psychological differences between us. Environmental effects are important but what we have learned in recent years is that they are mostly random – unsystematic and unstable – which means that we cannot do much about them.” Plomin (2018, xii)

Behavioral genetics has enabled psychology to quantify the relative contribution of nature and nurture with regard to specific psychological traits. One way to do this is to study relatives who share the same genes (nature) but a different environment (nurture). Adoption acts as a natural experiment which allows researchers to do this.

Empirical studies have consistently shown that adoptive children show greater resemblance to their biological parents, rather than their adoptive, or environmental parents (Plomin & DeFries, 1983; 1985).

Another way of studying heredity is by comparing the behavior of twins, who can either be identical (sharing the same genes) or non-identical (sharing 50% of genes). Like adoption studies, twin studies support the first rule of behavior genetics; that psychological traits are extremely heritable, about 50% on average.

The Twins in Early Development Study (TEDS) revealed correlations between twins on a range of behavioral traits, such as personality (empathy and hyperactivity) and components of reading such as phonetics (Haworth, Davis, Plomin, 2013; Oliver & Plomin, 2007; Trouton, Spinath, & Plomin, 2002).

## Implications

Jenson (1969) found that the average I.Q. scores of black Americans were significantly lower than whites he went on to argue that genetic factors were mainly responsible – even going so far as to suggest that intelligence is 80% inherited.

The storm of controversy that developed around Jenson’s claims was not mainly due to logical and

empirical weaknesses in his argument. It was more to do with the social and political implications that are often drawn from research that claims to demonstrate natural inequalities between social groups.

For many environmentalists, there is a barely disguised right-wing agenda behind the work of the behavioral geneticists. In their view, part of the difference in the I.Q. scores of different ethnic groups are due to inbuilt biases in the methods of testing.

More fundamentally, they believe that differences in [intellectual ability](#) are a product of social inequalities in access to material resources and opportunities. To put it simply children brought up in the ghetto tend to score lower on tests because they are denied the same life chances as more privileged members of society.

Now we can see why the nature-nurture debate has become such a hotly contested issue. What begins as an attempt to understand the causes of behavioral differences often develops into a politically motivated dispute about distributive justice and power in society.

What's more, this doesn't only apply to the debate over I.Q. It is equally relevant to the psychology of sex and gender, where the question of how much of the (alleged) differences in male and female behavior is due to biology and how much to culture is just as controversial.

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## Polygenic Inheritance

Rather than the presence or absence of single genes being the determining factor that accounts for psychological traits, behavioral genetics has demonstrated that multiple genes – often thousands, collectively contribute to specific behaviors.

Thus, psychological traits follow a polygenic mode of inheritance (as opposed to being determined by a single gene). Depression is a good example of a polygenic trait, which is thought to be influenced by around 1000 genes (Plomin, 2018).

This means a person with a lower number of these genes (under 500) would have a lower risk of experiencing depression than someone with a higher number.

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## The Nature of Nurture

Nurture assumes that correlations between environmental factors and psychological outcomes are caused environmentally. For example, how much parents read with their children and how well children learn to read appear to be related. Other examples include environmental stress and its effect on depression.

However, behavioral genetics argues that what look like environmental effects are to a large extent

really a reflection of genetic differences (Plomin & Bergeman, 1991).

People select, modify and create environments correlated with their genetic disposition. This means that what sometimes appears to be an environmental influence (nurture) is a genetic influence (nature).

So, children that are genetically predisposed to be competent readers, will be happy to listen to their parents read them stories, and be more likely to encourage this interaction.

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## Interaction Effects

However, in recent years there has been a growing realization that the question of “how much” behavior is due to heredity and “how much” to the environment may itself be the wrong question.

Take intelligence as an example. Like almost all types of human behavior, it is a complex, many-sided phenomenon which reveals itself (or not!) in a great variety of ways.

The “how much” question assumes that psychological traits can all be expressed numerically and that the issue can be resolved in a quantitative manner.

Heritability statistics revealed by behavioral genetic studies have been criticized as meaningless, mainly because biologists have established that genes cannot influence development independently of environmental factors; genetic and nongenetic factors always cooperate to build traits. The reality is that nature and culture interact in a host of qualitatively different ways (Gottlieb, 2007; Johnston & Edwards, 2002).

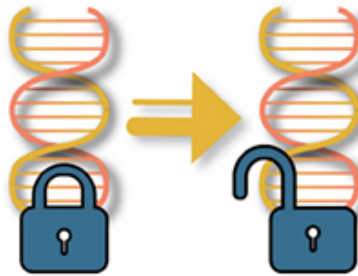
Instead of defending extreme nativist or nurturist views, most psychological researchers are now interested in investigating how nature and nurture interact.

For example, in [psychopathology](#), this means that both a genetic predisposition and an appropriate environmental trigger are required for a mental disorder to develop. For example, epigenetics state that environmental influences affect the expression of genes.

# WHAT IS EPIGENETICS?

## AND HOW DOES IT RELATE TO CHILD DEVELOPMENT?

“Epigenetics” is an emerging area of scientific research that shows how environmental influences—children’s experiences—actually affect the expression of their genes.



This means the old idea that genes are “set in stone” has been disproven. Nature vs. Nurture is no longer a debate. It’s nearly always both!



During development, the DNA that makes up our genes accumulates chemical marks that determine how much or little of the genes is expressed. This collection of chemical marks is known as the “epigenome.” The different experiences children have rearrange those chemical marks. This explains why genetically identical twins can exhibit different behaviors, skills, health, and achievement.



Therefore, it makes more sense to say that the difference between two people’s behavior is mostly due to hereditary factors or mostly due to environmental factors.

This realization is especially important given the recent advances in genetics, such as polygenic testing. The Human Genome Project, for example, has stimulated enormous interest in tracing types of behavior to particular strands of DNA located on specific chromosomes.

If these advances are not to be abused, then there will need to be a more general understanding of the fact that biology interacts with both the cultural context and the personal choices that people make about how they want to live their lives.

There is no neat and simple way of unraveling these qualitatively different and reciprocal influences on human behavior.

### How to reference this article:

McLeod, S. A. (2018, December 20). *Nature vs nurture in psychology*. Simply Psychology.  
<https://www.simplypsychology.org/naturevsnurture.html>

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## Further Information

Genetic & Environmental Influences on Human Psychological Differences [□](#)

Nature vs. Nurture Revision Notes [□](#)

## Evidence for Nurture

Classical Conditioning

Little Albert Experiment

Operant Conditioning

Behaviorism

Social Learning Theory

Conformity

Social Roles

Attachment Styles

## Evidence for Nature

Behavioral Genetics, Genetics, and Epigenetics [□](#)

Is Epigenetics Inherited?

Biological Approach

Biology of Gender

Medical Model

Bowlby's Maternal Deprivation Hypothesis

So is it nature not nurture after all?

## Evidence for an Interaction

Genes, Interactions, and the Development of Behavior ☐