

Nature Vs. Nurture Debate In Psychology

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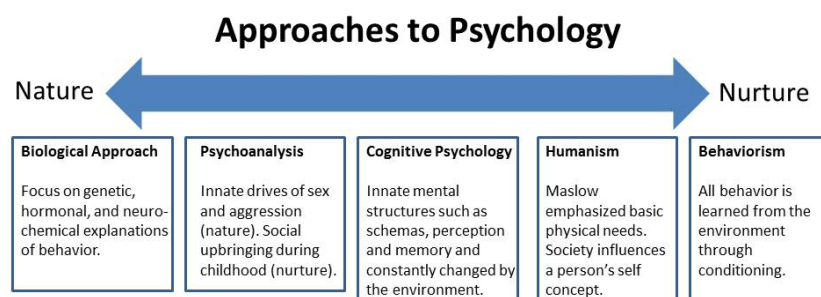
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The nature vs. nurture debate is a classic psychological and philosophical argument concerning the relative contributions of heredity (nature) and environment (nurture) in shaping human development, behavior, and personality. It explores whether our traits are primarily determined by our genes and innate qualities, or by our upbringing, experiences, and surrounding culture.

Key Takeaways

- Nature refers to the biological and genetic influences that shape who we are — the traits and tendencies that are pre-wired through inheritance and other physiological factors.
- Nurture encompasses the environmental influences that shape development after conception, including life experiences, learning, and social and cultural exposure.
- Behavioral genetics allows psychologists to estimate the relative contributions of genes and environment to specific psychological traits, such as intelligence, personality, and mental health.
- Epigenetics, a rapidly growing field, demonstrates how environmental factors can affect the expression of genes — showing that life experiences can leave biological marks that influence future behavior.

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.



Examples Of Nature Vs. Nurture

Nature vs. Nurture in Child Development

In child development, the nature vs. nurture debate is evident in the study of [language acquisition](#).

Researchers like Chomsky (1957) argue that humans are born with an innate capacity for language (nature), known as universal grammar, suggesting that genetics play a significant role in language development.

Conversely, the behaviorist perspective, exemplified by [Skinner](#) (1957), emphasizes the role of environmental reinforcement and learning (nurture) in language acquisition.

Twin studies have provided valuable insights into this debate, demonstrating that identical twins raised apart may share linguistic similarities despite different environments, suggesting a strong genetic influence (Bouchard, 1979).

However, environmental factors, such as exposure to language-rich environments, also play a crucial role in language development, highlighting the intricate interplay between nature and nurture in child development.

Nature vs. Nurture in Personality Development

The nature vs. nurture debate in personality psychology centers on the origins of personality traits.

Twin studies have shown that identical twins reared apart tend to have more similar personalities than fraternal twins, indicating a genetic component to personality (Bouchard, 1994).

However, environmental factors, such as parenting styles, cultural influences, and life experiences, also shape personality.

For example, research by Caspi et al. (2003) demonstrated that a particular gene (MAOA) can interact with childhood maltreatment to increase the risk of aggressive behavior in adulthood.

This highlights that genetic predispositions and environmental factors contribute to personality development, and their interaction is complex and multifaceted.

Nature vs. Nurture in Mental Illness Development

The nature vs. nurture debate in mental health explores the etiology of depression.

Genetic studies have identified specific genes associated with an increased vulnerability to depression, indicating a genetic component (Sullivan et al., 2000).

However, environmental factors, such as [adverse life events](#) and chronic stress during childhood, also play a significant role in the development of depressive disorders (Dube et al., 2002; Keller et al., 2007)

The [diathesis-stress model](#) posits that individuals inherit a genetic predisposition (diathesis) to a disorder, which is then activated or exacerbated by environmental stressors (Monroe & Simons, 1991).

This model illustrates how nature and nurture interact to influence mental health outcomes.

Nature vs. Nurture of Intelligence

The nature vs. nurture debate in [intelligence](#) examines the relative contributions of genetic and environmental factors to cognitive abilities.

Intelligence is highly heritable, with about 50% of the variance in IQ attributed to genetic factors, based on studies of twins, adoptees, and families (Plomin & Spinath, 2004).

Heritability of intelligence increases with age, from about 20% in infancy to as high as 80% in adulthood, suggesting amplifying effects of genes over time.

However, environmental influences, such as access to quality education and stimulating environments, also significantly impact intelligence.

Shared environmental influences like family background are more influential in childhood, whereas non-shared experiences are more important later in life.

The Interaction of Genes and Environment

Research by Flynn (1987) showed that average IQ scores have increased over generations, suggesting that environmental improvements, known as the [Flynn effect](#), can lead to substantial gains in cognitive abilities.

Molecular genetics provides tools to identify specific genes and understand their pathways and interactions.

However, progress has been slow for complex traits like intelligence. Identified genes have small effect sizes (Plomin & Spinath, 2004).

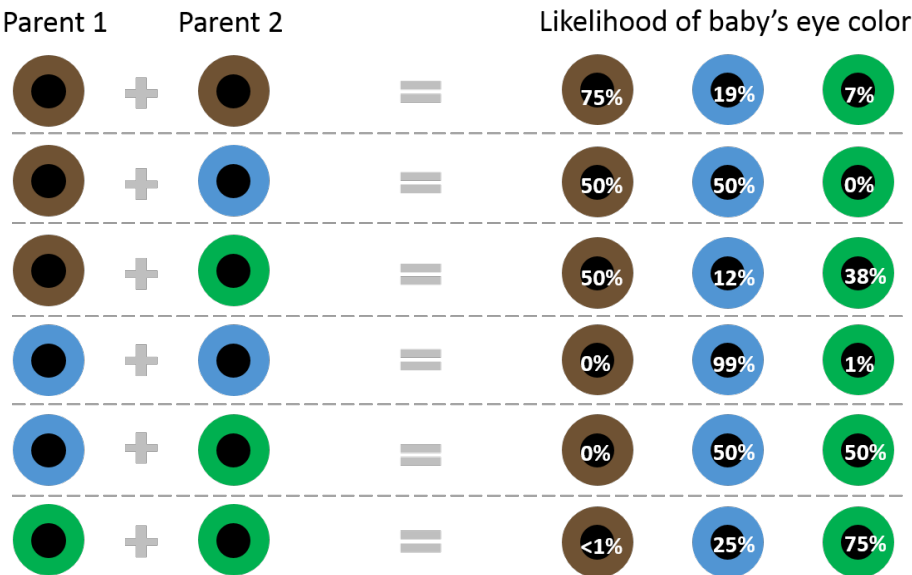
Overall, intelligence results from a complex interplay between genes and environment over development. Molecular genetics offers promise to clarify these mechanisms.

The nature vs nurture debate is outdated – both play key roles.

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.

Evidence and Examples of Nativist Views

Examples of 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 is 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](#).

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).



The Bobo doll experiment conducted by Albert Bandura supported the role of nurture in human development. It demonstrated that children learn aggressive behavior through observing and imitating adult models, highlighting the influence of environmental factors, particularly social learning, on behavior rather than innate predispositions.

Also, [Skinner \(1957\)](#) believed that language is learned 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).

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.

Adoption and Twin Studies

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 had 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 behavioral geneticists. In their view, part of the difference in the I.Q. scores of different ethnic groups is due to inbuilt biases in the methods of testing.

Broader Social and Political Controversies

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 are due to biology and how much to culture is just as controversial.

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.

While still limited in predictive power, polygenic risk scores provide a way to quantify innate genetic risk, allowing researchers to study how this interacts with environmental factors to influence outcomes.

Complexity of Genetic and Environmental Interactions

The high polygenicity of psychiatric disorders (many genes each contributing small effects) revealed by genetic architecture studies shows that there isn't a simple genetic determinism for most psychiatric conditions.

This complexity is further increased when you consider how these genes might interact with each other (epistasis) and with environmental factors.

The same genetic profile might lead to different outcomes in different environments.

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 looks like environmental effects are to a large extent 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 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.

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 that 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 myriad of qualitatively different ways (Gottlieb, 2007; Johnston & Edwards, 2002).