



Debate: Nature-Nurture

- This Factsheet summarises the nature-nurture debate in psychology which is part of individual differences and perspectives (AQA specification) and issues, perspectives and debates in psychology (Edexcel).
- The nature-nurture debate arises throughout psychology (examples given in this Factsheet are not exhaustive).

Definitions

- **Nature:** refers to inherited characteristics and abilities determined by our genes. Supporters of this view are known as 'hereditarians' or 'nativists'. 
- **Nurture:** refers to the influences of experience; we learn through our interactions with both the physical and social environment. Supporters of this view are known as 'empiricists'.

History of the nature-nurture debate

- The nativist position can be traced back to the Greek philosopher Plato who argued that children do not learn anything new but recollect knowledge that has previously lain dormant.
- In the seventeenth century the philosopher John Locke proposed the opposing empirical view, arguing that we are all born with a blank slate (inheriting nothing) and are shaped by our experiences.
- In the early days of psychology there was tension between the views, the dominant view being that behaviour was due to biological influences.
- Around the 1950s there were two dominant schools of thought, namely American behaviourists and the European ethological school which focused on natural behaviours being innate and universal.
- Several implications arise depending which of the two views is taken:
 - (i) if behaviour is inherited, interventions will not be effective, though drug therapies may be of use.
 - (ii) if behaviour is learned, childhood experiences are crucial to development so interventions are needed to train children appropriately.
- Although the term 'debate' suggests a need to choose one approach over the other, psychologists now acknowledge the influence of both nature and nurture (see text box A). It is no longer an either/or question. Instead the debate concerns the relative importance of each.

Text box A

Psychological approaches and the nature-nurture debate

- ❖ The biological approach is nativist, although for some disorders, the environment influences behaviour (e.g., *phenylketonuria*).
- ❖ The behavioural approach is empirical, proposing that all behaviour is the result of learning. However, the potential for learning is innate, having a genetic basis.
- ❖ The cognitive approach is empirical as it proposes that development is due to experience. However, the structure of the mental system is innate.
- ❖ The evolutionary approach is nativist, assuming that behaviour has evolved because of its survival or adaptive value (natural selection), though it does not generally ignore environmental influences. For example, in Bowlby's theory of attachment, the experience of sensitive care-giving is seen to develop a child's expectations that others will behave in the same way.
- ❖ The humanistic approach is largely empirical, assuming that each individual is unique. However, it proposes that human nature is inclined towards good health, positivity, and strives for self-actualisation.
- ❖ The psychodynamic approach is both empirical and nativist since behaviour is seen to be driven by innate drives, which interact with experience.

Examples of the nature-nurture debate in psychology

1. Perception

- The nativist view proposes that we are born with certain perceptual abilities that develop through a genetically programmed process of maturation. 
- In contrast, empiricists believe we are born with only the most basic sensory capacity and that it is experience and interaction with our environment that causes these to develop.
- Neither the nativist nor empiricist approach can fully explain perceptual development.
- Infant studies suggest that such skills develop as a result of an interaction between innate and environmental factors. Research now takes the approach of asking how such factors combine to produce a whole perceptual experience and what patterns of systematic change occur over time in the development of perceptual skills (e.g., Gibson, 1969).

2. Gender Development

Although our sex is determined by our chromosomes, gender behaviour and identity have been shown to be due to the effects of socialisation (social learning theory), changes in the way a child thinks (cognitive-developmental approach) as well as biological factors (psychoanalytic and evolutionary approaches). 

3. Language

- Nativist theories propose that we are biologically equipped to acquire language (e.g., Chomsky).
- In contrast, environmental theories view language development as dependent on imitation and reinforcement (e.g., Skinner).
- Neither the nativist nor empiricist approach can explain language development on their own.
- Most researchers take an integrative view that incorporates the role of both innate factors and experience (e.g., cognitive theory, social interactionist theory), though such theories still have difficulty in explaining language development fully.



Exam Hint: For the exam you need to know at least two examples of the nature-nurture debate in psychology.

4. Cognitive development

- Piaget's theory proposes that cognitive development is biologically-driven, with innate schemas developing due to new experiences.
- The individual is the main focus of the theory, with the environment enabling biological cognitive structures to develop.
- Piaget's theory therefore acknowledges the role of both nature and nurture, emphasising the potential available to all in an appropriate nurturing environment.



5. Aggression

- Biological explanations propose that the male hormone testosterone causes aggressive behaviour.
- In contrast, social learning theories propose that aggressive behaviour is learned through direct and vicarious experience.
- Other empiricist theories propose aggression is a product of the physical environment (e.g., temperature, crowding), *deindividuation* or relative deprivation.
- None of these theories are able to fully explain aggressive behaviour on their own.



6. Causes of mental illness

- Whilst research has identified a genetic basis for many disorders (e.g., schizophrenia, depression), environmental influences have also been shown to have a part to play.
- The diathesis-stress model proposes that mental illness is a result of the interaction of nature and nurture; underlying predispositions (i.e., genetic vulnerability) only develop into the mental disorder if activated by stressors in the environment (e.g., major life events, traumatic experiences). The more susceptible an individual is, the less stresses are necessary for the disorder to develop.



7. Intelligence

- Until the middle of the 20th century, intelligence was generally regarded as biologically determined.
- In the 1950s the dominant view switched to the empiricist view.
- Recent research by Turkheimer et al. (2003) highlights the complexity in deciding the influence of genes/environment on intelligence. They found that the contribution of genetic factors to intelligence was greater for wealthy children (*heritability 0.72*) than poor children (*heritability 0.10*).



Researching nature-nurture influences

1. Twin studies

- Most research has employed twin studies using both *monozygotic* and *dizygotic* twins.
- Such studies are natural experiments since the independent variable, genetic relatedness, is not manipulated/controlled by the experimenter and individuals are not randomly allocated to conditions.
- Research may compare twins who are reared together or apart. For example, Shields (1962) compared IQ scores of monozygotic twins. They found that the *concordance rate* in IQ scores was 0.76 when reared together and 0.77 when reared apart. This suggests little environmental influence on intelligence since both groups had similar IQs regardless of their environment.
- Such research suggests that 50% of the variation in adult characteristics is due to genetic factors. Therefore 50% of the variation is also due to environmental factors. These factors cannot be the shared environment (e.g., the home) otherwise natural and adopted siblings would be more similar than they are (Maccoby & Martin, 1983). Instead the variation is due to non-shared environmental factors (e.g., peer influence).



2. Animal research

Animal experiments manipulate the environment to assess the effect on development and behaviour. For example, Blakemore & Cooper (1970) study of perception in kittens demonstrated how the nervous system can adapt to the environment ('neural plasticity').

Methodological difficulties in the nature-nurture debate

It is impossible to provide true experimental evidence of nature-nurture influences.

1. Twin studies

- o Although monozygotic twins start out as identical cells, as the cells divide and multiply there will be minor differences.
- o Small variations in inherited characteristics and behaviour create different micro-environments, so that each child creates their own environment in terms of how they react, select interactions and what they attend to (Plomin, 1994).
- o Twins, although reared apart, may have spent a lot of time together, gone to school together, and are often raised by relatives (Kamin, 1977). Adopted twins are usually placed in homes similar to their natural home.

2. Animal research

Although this has been more successful in defining and manipulating environmental variables, transferring these findings to humans is problematic, particularly when considering cultural influences (Horowitz, 1993).

3. Manipulation of variables

- o There is no agreement regarding how to define or measure our environment.
- o Research that manipulates the environment usually involves making judgements about what makes a good or bad environment.
- o In order to attribute differences between genetically-different groups to nature, both groups must share the same environment. In the past, psychologists have falsely proposed that certain groups of people ('races') are genetically more intelligent than others (e.g., Jensen, 1969), ignoring environmental differences (e.g., education, poverty).

Alternative views of the nature-nurture relationship

a) Gene-environment interactions

- Genes may influence behaviour and the environment.
- Research suggests three types of gene-environment relationships (Azar, 1997);
 - (i) **passive relationship** - parents' genes are transmitted passively to the child via the environment that the parents create. For example, if artistic ability is assumed to be genetic, then artistically-gifted children will have parents with an artistic inclination who provide both the genes and the environment that promote artistic ability.
 - (ii) **evocative relationship** – genetically distinct individuals may evoke different reactions in those around them. For example, an artistically-gifted child may be chosen for special training opportunities, or may produce admiration from peers.
 - (iii) **active relationship** – individuals actively select experiences that best fit their genetically-influenced preferences. For example, artistically-gifted children may seek out artistic experiences, opportunities and friends with artistic ability.

b) Reaction range

- Gottesman (1963) proposed a reaction range of gene-environment interactions.
- This proposes that whilst experience does affect development of a skill or ability, its development will be limited by our biological inheritance.
- Our genes establish a reaction range within which development occurs; the observable characteristics we display (our phenotype) result from the interaction between our genotype (potential) and our environment.
- For example, height is affected by the quality of food we eat as a child. Even with the best possible diet, we cannot grow beyond the height laid down by our genes.

c) Nature via nurture

- Genes are seen to both interact with the environment and be activated by experience (Ridley, 2003).
- Promoters in our DNA switch genes on and off. As some promoters are affected by our environment, which genes will be expressed depends on the individual's environment.

Consequences of the nature-nurture debate

- The contribution of nature and nurture has important practical and political implications.
- For example, if intelligence is seen to be largely influenced by environmental factors, this supports interventionist programmes such as Operation Headstart, set up in America in the 1960s to help disadvantaged children. Alternatively, if intelligence is seen to be innate, this supports schemes that separate individuals on the basis of their innate potential. An example of this is the 11-plus examination and selective placement in secondary schools in the UK.

Example exam question: Discuss the nature-nurture debate in psychology.

This question requires you to both describe and evaluate the nature-nurture debate. You could consider particular examples of nature and nurture in psychology. In this case, any of the examples given in this factsheet are relevant, though you will need to be selective (only choosing a few in order to give yourself enough time to evaluate each example selected). Alternatively, you could focus on more general issues such as the alternative views regarding the relationship between nature and nurture, research methodologies and difficulties. For either approach, the evaluation will need to consider the implications and consequences of each approach.

Exam Hint: If the exam question asks you to discuss the history of the nature-nurture debate, you can describe any of the examples of nature and nurture topics in psychology, but you will need to ensure your answer gives a sense of the historical development in the description. Remember, you can also consider the consequences of the historical views taken on people's lives (e.g., effects of viewing intelligence as either genetic or environmental).

Glossary

Concordance rate: the extent to which two measures are in agreement.

Deindividuation: the process that occurs when an individual loses their sense of individual identity so that social, moral and society's constraints on behaviour are loosened.

Dizygotic: non-identical twins come from two eggs and are genetically as similar as any siblings (being 50 per cent genetically similar).

Heritability: a measure of the relationship between the variance of a trait in the whole population and the extent that variance is due to genetic factors.

Monozygotic: identical twins who come from a single egg and have the same genes.

Acknowledgements: This Psychology Factsheet was researched and written by Louise Hope
The Curriculum Press, Bank House, 105 King Street, Wellington, Shropshire, TF1 1NU.

Psychology Factsheets may be copied free of charge by teaching staff or students, provided that their school is a registered subscriber. No part of these Factsheets may be reproduced, stored in a retrieval system, or transmitted, in any other form or by any other means, without the prior permission of the publisher. ISSN 1351-5136

Worksheet: Debate: Nature-Nurture

Name _____

1. Define the terms 'nature' and 'nurture'.

2. Briefly outline the history of the nature-nurture debate

3. Give two examples of the nature-nurture debate in psychology.

1. -----

2. -----

4. Explain the issues and assumptions of the two examples given in question 3.

5. What are the main research methods for studying nature-nurture?

6. What are the difficulties with the methods given in question 5?

7. Briefly outline two different views regarding the relationship between nature and nurture.

1. -----

2. -----

