



## Gender: Nature or Nurture?

The focus of this Factsheet is to apply the **nature/nurture** debate to the topic of gender. Keywords are highlighted throughout the text and relevant definitions can be found in the glossary at the end of the Factsheet. A worksheet is included with examination style questions that can help you to develop your examination skills.

### The examiner will expect you to:

- Describe what is meant by the nature/nurture debate.
- Explain what is meant by an **interactionist** argument.
- Apply your knowledge of gender development to discuss the debate.

### Introduction

Nature/nurture is a key debate in psychology. Nature is the belief that behaviour is innate, it is inherited through the genes we gain from our parents at birth. In comparison, the nurture argument states that behaviour is developed through interactions with the environment, at birth we are all born as a blank slate and who we are is a result of our experiences in life. Historically, psychologists believed that behaviour was down to one or other, but recently, the viewpoint of interactionism has become more dominant. This is the idea that nature and nurture work together, and instead psychologists debate the relative importance of each one in determining behaviour.

### Gender and the Nature Argument

The nature argument believes that a person's gender correlates with their biological sex. In the same way that sex is determined at conception, by the presence of an X or Y **chromosome**, gender is also determined at this point. An ovum that is fertilised by an X sperm has a genetic pattern of XX and will biologically be female, whereas one which is fertilised by a Y chromosome will develop into a male. After conception, the developing embryo will be the same regardless of its chromosomal makeup, until about 6 weeks, where the Y chromosome will cause the penis and testicles to develop, or in its absence, ovaries will develop. After the development of the sex organs, they will begin to release **testosterone** in males, or **oestrogen** in females, which both have a strong influence in determining our gender development, because of their effects on the brain.

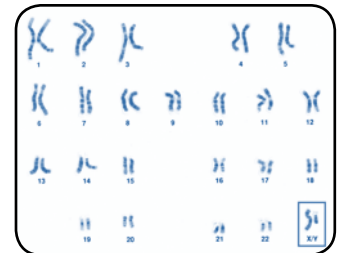


*What causes gender?  
Is it nature or  
nurture?*

**Exam Hint:** This Factsheet will be useful both in your study of gender development and of issues and debates in psychology. For the issues and debates module, you should be able to outline what the nature/nurture debate is and then use your knowledge of gender to discuss the key issues of the debate.

Testosterone is associated with the masculinisation of the brain and is key in the development of brain areas related to spatial skills. In contrast, oestrogen feminises the brain and is associated with the development of the brain areas linked to fine motor skills.

It is through the actions of chromosomes and hormones that biological psychologists believe gender is developed.



*A human karyotype showing all 23 pairs of chromosomes in an individual. The sex chromosomes are highlighted.*

**Exam Hint:** You should be able to briefly outline the biological processes behind gender development. Not only will it be necessary when writing about the nature/nurture debate, but it would also be relevant when writing about the biological approach to gender development.

### Research into Chromosomes and Gender

The case study of David Reimer has provided an interesting insight into the origins of gender development; In 1965, the Reimer family welcomed twin boys, Bruce and Bryan. Shortly before their first birthday, both boys underwent a circumcision, a procedure that removes a boy's foreskin from their penis. Unfortunately, during Bryan's operation, there was a malfunction with the equipment, which resulted in a horrific accident where Bryan's penis was burnt almost entirely off. During this time, Dr. John Money, was developing his theory that gender was exclusively the result of nurture. Upon hearing about the accident, Money offered his support and it was decided that Bryan should be raised as a girl, and his name was changed to Brenda. Throughout his childhood, whilst his brother was bought masculine toys and was treated as a boy, Brenda was encouraged to play with dolls and wear girl's clothes. As Brenda grew older, it became evident that she had never been happy, and as she entered adolescence, symptoms of **gender dysphoria** became evident and Brenda became suicidal, prompting her parents to tell her the truth. Upon this revelation, Brenda decided to revert back to being male, and changed his name to David.

**Exam Hint:** Although the case study of David Reimer is fascinating, make sure you can recount the study in a concise way. Explaining the whole story of David Reimer is likely to waste time in an essay and may mean you may not be able to achieve the appropriate balance of AO1/AO3 marks. Stick to just two or three short sentences to explain what happened and why it is relevant in psychology.

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The story of David Reimer shows that despite an environment wherein he had been encouraged to be female, his masculinity had prevailed. Therefore, the case study can be used as supporting evidence to suggest that nature is more influential in our gender development compared to nurture.

This case provides us with the unique opportunity of studying whether the environment can be manipulated to change a person's gender. This is not something which could be manipulated by psychologists due to ethical considerations. Thus, the use of a natural experiment, where the independent variable has changed naturally, is the only way in which events such as this can be studied – so, this study has provided some of the key evidence to suggest that gender has at least some basis in nature.

However, due to the nature of a natural experiment, all **extraneous variables** cannot be controlled. It could be argued in this case, that David's twin brother became a **confounding variable**. Despite David being raised as a girl, his brother continued to be raised as a male, which could have provided a male role model for David; seeing how his brother was reinforced for acting in a masculine way could have influenced David to also display masculine behaviour. Therefore, it cannot be really said that David's reversion to the male gender identity was purely due to his biology, which weakens the study's support of the nature argument.

### Research into Hormones and Gender

When discussing the influence of hormones on gender, we can discuss both the **prenatal** and **postnatal** effect of hormones.

Research into the prenatal effects on hormones has investigated **adreno-genital syndrome**, a condition where female embryos containing a typical XX chromosome pattern are exposed to excess testosterone in the womb due to a malfunctioning of the adrenal glands. This can cause the appearance of male-like genitals, although babies are normally identified as female at birth and raised as such. Despite this, Money and Ehrhardt (1972) found that many of these children adopted what have historically been considered to be masculine traits, including aggression, self-reliance and assertiveness. It was therefore suggested that their gender had been influenced by the excessive amounts of testosterone supporting the belief gender is impacted by nature.



*Hormones are released during pregnancy which play a significant part in gender development*

There has also been research conducted into the post-natal effects of hormones. One key piece of evidence is the research undertaken by Van Goozen et al. (1995) who investigated the effects of sex hormones on adult behaviour. Using **transsexuals** who were undergoing a sex change, Van Goozen injected participants with the hormones of the sex that they wanted to be i.e. male to female transsexuals were injected with oestrogen and vice versa. It was found that male-female transsexuals showed decreases in aggression and visual spatial skills and increases in verbal fluency. The opposite was found in female-male transsexuals. The change in gender related behaviours again supports the conclusion that gender is related to our hormones, and is at least in part, influenced by nature.

Even though these studies appear to support the theory that hormones affect gender behaviour, the studies are both conducted on atypical individuals, which raises questions about generalisability. Just because hormones work this way in these individuals, doesn't mean that hormones would have the same effect in a sample of individuals without gender dysphoria. Therefore, the theory that hormones are important in gender development may not be applicable to a typical population.

Research conducted by Gladue (1985) found that there were few, if any differences between heterosexual, homosexual and gender dysphoric men. This suggests that hormones may not be important in determining gender development.

Additionally, the research conducted by Van Goozen might also be flawed due to **demand characteristics**. The participants were undergoing sex changes, and so the change in their behaviour from masculine to feminine and vice versa, may not have been due to the hormones, but instead due to their desire to act like the opposite sex. Again, this suggests that hormones may not be as influential as initially thought in gender development, which weakens the argument that gender is due to nature.

**Exam Hint:** To gain extra discussion marks in your essays, you could compare the hormonal and chromosomal explanations of gender development. For example, you could consider the contribution of each explanation to the nature debate, and the relative strengths and limitations of each of the two explanations.

### Gender and the Nurture Argument

The nurture argument believes that gender is the result of environmental influence and can largely be explained by **social learning theory**. Social learning theorists believe that gender is essentially a product of **socialisation**, wherein individuals are taught and encouraged to adopt certain values and roles. In the case of gender, children would be brought up being encouraged to act in accordance with **sex-role stereotypes**, expectations from society about how males and females should each act, for example that women should be caring, whilst men should be tough. These can vary in accordance with family upbringing and culture. It is generally accepted that there are two types of socialisation; **primary** and **secondary**. Primary socialisation is the period where we learn norms and values, for example to do with gender, from our immediate families, most commonly our parents. Secondary socialisation is learning norms and values through interactions with peers, teachers and role models in the media.



*Gender can be learned through primary socialisation*

Social learning theorists also believe that gender is learned through observing role models in the environment. Once a child has an awareness of their biological sex, they will then seek out role models with whom they identify. Eventually, they will begin to **imitate** and **internalise** their behaviours, using **vicarious reinforcement**. If a child observes a role model displaying gender appropriate behaviours and that behaviour is then reinforced, the child is much more likely to copy it, compared to if there had been either no **reinforcement** or **punishment**.

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**Exam Hint:** Keywords are especially important when talking about Social Learning Theory and there does seem like an awful lot to learn, from imitation to vicarious reinforcement, they are all important in explaining the theory! However, these keywords apply to all aspects of Social Learning Theory, so whether you are writing an essay on gender, issues and debates or even forensic psychology or approaches, these keywords will be extremely useful, so make sure you can define and use them accurately.

### Research in Gender and Nurture

Smith and Lloyd (1978) showed how parents encourage gender stereotyped behaviours in their children. Researchers used babies and dressed them as both their actual sex and as their opposite sex and presented them to a series of adult participants in a play room. The adults were told it was a test of how babies react to strangers, instead it was investigating the sex typed behaviours shown by the participants. It was found that when the babies were dressed as boys, they were played with more roughly and were given cars and trucks to play with. In comparison, the babies who were perceived to be girls, were played with in a gentle way and given dolls and cuddly toys. This study shows how parents reinforce gender stereotypes, which could show how gender is learned from the environment.

Additional research into the impact of primary socialisation was conducted by Fagot (1979). She observed 24 young children at home playing with their parents and found that parents reinforced girls for asking for help, playing close by and dressing up. Boys, on the other hand, were reinforced for playing with building bricks and were actively discouraged from doll play. This suggests that reinforcement from the environment plays a key part in gender development and supports the nurture argument.

**Cross-cultural** research is also another effective way to study whether gender is affected by nature or nurture. If behaviour is found to be the same all over the world, then it can be assumed that it must be due to nature, in the shared human DNA that people all around the world share. However, if behaviour is different all around the world, then the behaviour could be attributed to the vast environmental differences between countries.

One of the most famous cross-cultural studies to investigate gender is that of Margaret Mead (1930). Initially trained as an anthropologist, Mead spent six months living with three different native tribes in Papua New Guinea and in each, found examples of very different gender roles. In one tribe, the gender roles were like those in the western world, with women staying at home and the men going out to hunt. However, in the next, the roles were dramatically reversed, with men considered the more sensitive sex and more able to look after children whilst the women left to hunt. In the final tribe, the two sexes took shared responsibility between childcare and provision of food and resources. As the perception of gender roles was so dramatically different even within this one country, it could be argued that the environment heavily influences gender.

One problem however, is that the social learning theory fails to explain why different cultures may have similar genders. Buss (1989) investigated gender differences in mate preferences. He found that both males and females looked for the same attributes in partners across a wide variety of cultures. This was attributed to evolution, reflecting how gender differences and mating behaviours were designed to reflect the reproductive capabilities of each sex.

As this is an evolutionary explanation for gender differences, it could also be used to refute the theory that gender is determined by the environment. A second problem with this theory is the lack of **temporal validity**. For example, since Smith and Lloyd's (1978) study, attitudes towards gender development have changed drastically. The British Social Attitudes survey has conducted research into the changing nature of attitudes towards gender roles. Since 1984, the number of people that consider a woman's place to be in the home/caring for children has decreased by almost 30%. This means that parents may no longer socialise children to behave in the same sex-typed ways, so we cannot conclude that gender development today is influenced by socialisation and nurture.

**Exam Hint:** There are lots of studies to learn in psychology, and the amount can sometimes seem overwhelming. However, they are key in helping you to gain marks in essays. Describing research can gain AO1 marks, whereas evaluating or using research to support or refute theories can gain AO3 marks. You should try to include at least one piece of research in each essay that you write.

### Interactionism

Despite the arguments presented, it is not feasible to state that gender is affected by purely nature or purely nurture. A more plausible explanation is that there is an interaction between the two, and that in some way both nature and nurture contribute to gender.

The cognitive explanation provides an example of this, through **gender schema theory**. A **schema** is a cognitive structure containing information or knowledge that guides behaviour, as applied to gender, our schemas tell us how we should act as males or females. This is considered as interactionist as all babies are born with the ability to produce schemas, and that their ability to develop schemas increases with age and experience. The first schemas children develop relate to stereotypical personality traits, activities and behaviours for each gender, which are learned from those around them. This creates a framework that helps them to direct their own behaviours. By 6 years of age, the child has a fixed and stereotypical idea about what is appropriate for his or her gender and this helps to inform the child in the appropriate ways to behave.



A woman ironing and a young girl holding a doll

**Exam Hint:** When writing about debates in psychology, it is always a good idea to sum up your arguments in a conclusion at the end of your essay. The interactionist approach provides a great opportunity to discuss how both nature and nurture work together and can finish your debate off nicely.

Gender schema theory was investigated by Martin and Halverson (1983). Children were shown pictures of people carrying out different activities that were either schema consistent, e.g. a girl playing with a doll or schema inconsistent (e.g. a boy playing with a doll). They tested children's recall of these pictures, finding that their memory for the schema consistent pictures was good, however the memory for the schema inconsistent pictures was poor. These results were interpreted to conclude that children use gender schemas to interpret new information; this shows that the interaction between nature and nurture is important in determining a child's understanding of gender development.

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### Conclusion

In conclusion, the debate on the origins of gender is still unsolved. While there are those that believe gender is instigated by our biology and is determined at birth, and those that believe the environment we grow up in determines our gender, at this point it seems unlikely that the dispute will ever truly be resolved. Nature and nurture are so closely intertwined that it is almost impossible to separate them; from the moment children are born they interact with their environment, and to negate the effect of either approach is in no way beneficial. Therefore, the interactionist approach seems to be the most reasonable explanation, where gender is determined through both nature and nurture working together.



*What causes us to be masculine or feminine?  
Most likely it is the interaction between our environment and our biology.*

### Glossary

**Adreno-Genital Syndrome:** A condition where female embryos are exposed to an increased amount of testosterone.

**Chromosome:** A molecule of DNA containing genetic material.

**Confounding variable:** A variable that hasn't been accounted for in an experiment and which has affected the dependent variable.

**Cross cultural:** Research that is conducted across a variety of places,

**Demand characteristics:** Where participants in research change their behaviour in response to finding out the aim of the study.

**Dependent variable:** The variable in an experiment which is measured.

**Extraneous variable:** Any variable which should be controlled before an experiment as otherwise, it may influence the dependent variable. **Gender dysphoria:** A psychological condition wherein an individual's biological sex and gender do not correlate.

**Gender:** The psychological behaviours, beliefs and attitudes about whether one is feminine or masculine.

**Gender schema theory:** The theory that one's schemas, through interaction with the environment influence gender related behaviours.

**Identification:** The process of associating oneself with another person; seeing them as similar.

**Imitation:** Copying a behaviour.

**Independent variable:** The variable which is manipulated in an experiment.

**Interactionism:** The belief that nature and nurture work together to determine behaviour.

**Internalisation:** Taking a behaviour on board, so that it no longer needs to be reinforced to occur.

**Natural experiment:** An experiment wherein the independent variable is naturally occurring and cannot be manipulated.

**Nature:** The belief that characteristics and behaviours have an innate basis; that we are born with it.

**Nurture:** The belief that characteristics and behaviours are due to environmental influence.

**Oestrogen:** The female hormone linked to feminine traits including caring and sensitivity.

**Postnatal:** The period after birth.

**Prenatal:** The period before birth; during pregnancy.

**Primary socialisation:** Learning the norms and values of society through immediate family.

**Punishment:** A consequence of behaviour which reduces the likelihood of the behaviour reoccurring.

**Reinforcement:** A stimulus which increases the chances of a behaviour occurring again.

**Schema:** A cognitive structure containing information or knowledge which guides behaviour.

**Secondary socialisation:** Learning the norms and values of society through other individuals including peers, teachers and role models in the media.

**Sex role stereotypes:** Expectations and beliefs about how males and females should behave.

**Sex:** A person's biological makeup.

**Social learning theory:** An approach in psychology which suggests that behaviours caused by the environment, specifically through the influence of role models and vicarious reinforcement.

**Socialisation:** The way children are taught how to behave in society.

**Temporal validity:** The accuracy of research findings over time.

**Testosterone:** Part of a group of hormones known as androgens, the male hormones, linked to masculine traits including aggression.

**Transsexuals:** Individuals with gender dysphoria who have elected to undergo gender reassignment surgery.

**Vicarious reinforcement:** Observing the reinforcement of another person and copying their behaviour as a result.

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**Worksheet: Gender: Nature or Nurture?**

Name: \_\_\_\_\_

1. Paul and Mary are psychology students who are having a heated discussion about the nature/nurture debate. Paul believes that gender is affected by the way parents treat children, but Mary believes that children are born with their gender and that this cannot be changed. With reference to the views expressed by both Mary and Paul, discuss whether gender is as a result of nature or nurture.

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2. Explain one strength or limitation of the nurture argument in relation to gender development.

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3. Describe and evaluate at least one piece of research investigating the nature approach to gender development.

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4. Explain how cross-cultural research into gender has contributed to our understanding of the nature nurture debate.

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5. Discuss the interactionist explanation of gender, with reference to the nature/nurture debate.

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