In this column, Lance Workman casts an evolutionary psychologist’s eye over different aspects of human behaviour. Here, Lance discusses how evolutionary theory has been used to explain the development of gender roles.

**The evolution of gender roles**

What led to your gender identity? Were you socialised into it or did biological factors lead you down your own path to ‘maleness’ or ‘femaleness’? This ‘nature versus nurture’ argument has been with us since the start of psychology as an academic discipline (Taylor 2009). For much of the twentieth century, the debate was one of hormones versus social conditioning explanations, with, on the one hand, differences between levels of circulating sex hormones being seen as responsible for the development of gender roles and on the other, the different expectations that society places on girls and boys being held up as the primary cause. During the last 15 years, however, the biological argument has become more refined, as those on the nature side of the debate have sought to explain why these differences in sex hormones arose as a result of different evolutionary pressures faced by males and females. That is, the emergence of evolutionary psychology has added a layer of explanation to the nature side of the debate.

Before examining the strengths and weaknesses of this argument, first we need to have a clear understanding of the terminology used by psychologists when considering gender. A gender role is a set of socially and culturally defined expectations describing how males and females should think, act and feel. Gender differences consist of real disparities in typical behaviour between the sexes, whereas gender stereotypes are views that people maintain with regard to gender differences, whether they exist or not. Although the precise nature of gender roles may vary between cultures, gender stereotypes seem to be pretty universal, with males perceived as the competitive, status-seeking, risk-takers who are sexually indiscriminate, and females being seen as more passive, choosy and coy (see Box 1).

**Box 1 Socialisation explanations of gender role formation**

Although the nature versus nurture debate on gender role formation is often portrayed as a biological theory pitted against a socialisation theory, the reality is more complex than this as there are two main ‘camps’ of socialisation theorists. Object-relations theorists emphasise the role of mothers who raise boys and girls differentially, leading them to develop male and female gender role identities — for example, it is more permissible for boys to engage in rough and tumble play and for girls to play with dolls; in this way the mother reinforces gender-appropriate behaviour.

In contrast, gender schema theorists see societal norms as playing a prominent role in the development of such roles. Hence, a child gradually internalises the particular society’s norms and responds in gender-appropriate ways. So, although both explanations emphasise socialisation processes in the formation of gender roles, the origin of such socialising forces is a hotly contested area of debate in itself.

Darwin was interested in sex

Armed with these definitions and perceptions of maleness and femaleness, we can now examine evolutionary psychology’s explanation for the development of gender roles. The starting point for the evolutionary explanation of gender roles is Darwin’s theory of sexual selection. If you have read my previous columns, you might recall that, whereas natural selection is all about evolving characteristics that aid survival, such as good visual acuity and appropriate foraging strategies, sexual selection is concerned with evolving strategies that help you gain access to the opposite sex. Not content with telling Victorians they had evolved from apes in *On the Origin of Species* in 1859, Darwin went on to publish a book on sex in 1871. He called it *The Descent of Man and Selection in Relation to Sex*.

In *The Descent of Man* Darwin developed his theory of sexual selection to explain why the sexes differ. Having introduced sexual selection, Darwin then outlined two sub-components: intrasexual selection, which involves competition with members of your own sex for access...
to the other sex and intersexual selection, which involves impressing the opposite sex (note ‘intra’ means within and ‘inter’ means between). Hence, males develop competitive weapons through intrasexual selection — such as claws and horns (think of bulls and stags) — whereas through intersexual selection, they develop gaudy ornamentation to impress the females — think of the lion’s mane or the peacock’s tail. For their side of the equation, females are described as the choosy ones, needing to weigh up the relative merits of various males before accepting one to mate with. In this way, Darwin opened the door to an evolutionary explanation, not only to differences between the sexes in the animal kingdom, but also to the formation of human gender roles.

How much parents invest in offspring

Darwin’s explanation of sex differences was only partial however, since, although he documented how males were both more aggressive and gaudier than females, he could not fully explain why it should be this way around. Why should it be the males that are colourful and aggressive and the females that are choosy? It was to be 100 years before this conundrum was solved. In 1972, a young US evolutionist called Robert Trivers realised that the reason it was this way around was because, for most species, there is an asymmetry of effort put into producing offspring. While, for the most part, males bring a little sperm to offspring production, females — in the case of mammals — have a lengthy period of gestation followed by a lengthy period of lactation, and in the case of birds, they are responsible for the production of costly eggs.

Trivers called this effort that the two sexes put into producing offspring parental investment and proposed that because females invest a great deal more than males, males will compete to impress females. So Trivers realised that intersexual selection is due to this asymmetry in parental investment between the sexes. In a sense, female parental investment is what males compete for and it is the evolutionary driving force for sex differences throughout the animal kingdom, including the formation of gender roles in our own species. According to Trivers’s evolutionary perspective, all differences between the sexes, from large body size in males through to the more coy nature of females when it comes to sex, to modern-day sex role differentiation, can be traced back to his theory of differences between the sexes in their investment in offspring.

In the case of humans, Trivers also suggested that males would be attracted to females showing signs of fertility since these signs are, in effect, an advertisement of the ability to invest in offspring. Such features include an hour-glass figure, lustrous hair and clear skin (all of which are supported by female sex hormones). In a sense, men compete via status and resources to fertilise a woman’s eggs and this is an important factor in determining their gender role.

The evolution of desire

Well, that is the theory. The question is, does the evidence support the evolutionary explanation of gender role formation? David Buss, in his book, The Evolution of Desire (1994), used the Darwin/Trivers framework to explore the nature of gender roles through an examination of male and female mate preferences. In The Evolution of Desire, Buss suggested that the reason males are the risk-takers attempting to gain status and resources is because such behaviour patterns would have impressed ancestral females and increased access to them. He was able to support this notion with a large-scale study.

By examining the views on mate preference of 10,047 participants spread over 37 cultures, Buss demonstrated that cross-culturally, females are attracted to males that are able to gain resources and that have high status. Males, for their part, do rate physical attractiveness more highly than females (including the signs of fertility that Trivers outlined earlier). To Buss, this suggests that differences in mate choice preferences really can be traced back to the different reproductive costs that came about through evolution.

These differences in mate choice criteria then have a knock-on effect in the evolution of male and female gender roles. The fact that the differences Buss found held up among a large number of cultures is taken as evidence that they are evolved differences. The argument here is that if such features vary between cultures, then they are likely to be a product of culture. However, when we see them as universal characteristics, then a more parsimonious explanation is that they came about through evolution (that is, the chances of 37 different cultures all happening independently to develop the same gender differences is a million-to-one shot).

Criticisms

Evolutionary explanations of gender role formation seem to make a lot of intuitive sense but they are not without their critics. As Sandie Taylor (2009) has pointed out, we cannot research evolutionary processes directly since, in the absence of a time machine, we cannot observe the evolutionary pressures that our ancestors faced directly. Likewise, Wood and Eagly (2002) suggest that rather than gender roles being determined directly by evolution, we gravitate towards different gender roles due to evolved differences in reproductive roles (see Box 2 on page 10). Moreover, it has also been pointed out that there are differences in Buss’s study across cultures in features such as how permissible it is for each of the genders to have premarital sex. To Wood and Eagly this
suggests that socialising factors are of great importance to gender-appropriate behaviours.

Evolutionary psychologists have responded to such criticisms by suggesting that human behavioural adaptations are structured to respond contingently to local social and ecological factors, rather than being immutable (Workman and Reader 2008). We need, however, to bear in mind these criticisms of the evolutionary approach. In Buss’s favour, he has pointed out that his findings have subsequently been independently replicated by follow-up studies (Buss 2008). Also, it is entirely possible that the debate between Buss and Wood and Eagly is more apparent than real. If we consider the biosocial approach as being a part of the causal mechanism that leads us down a path partly shaped by evolutionary processes, then the nature and nurture camps may be closer today than we ever thought possible.

References


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Box 2 The biosocial approach of Wood and Eagly: an integration of social and evolutionary factors

Although the topic of gender roles has a tendency to polarise psychologists, one theoretical approach that attempts to integrate nature with nurture is the biosocial approach of Wood and Eagly (2002). The idea here is that, rather than males and females being born to take on different gender roles through sexual selection, due to the physical differences that emerge at puberty, they then begin to gravitate towards different roles. Hence, males perceive themselves to be taller and stronger than the average female and, as a result, tend to be more competitive.

In contrast, given that the vast majority of females will become pregnant at some stage in their lives, this self-knowledge often leads them to take on a more risk-averse and less competitive role in society. According to Wood and Eagly’s model, it is largely due to the burden of reproduction that women are less able to compete for high status in society, rather than being due directly to evolved differences between the sexes.

Key words
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Gender roles
Selection
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Parental investment

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