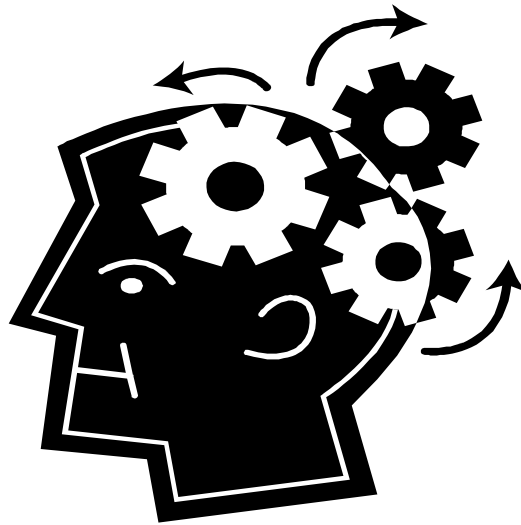


Nature
Nurture



Jennifer Thomson
Tutor: Lorna Smith

The purpose of this essay is to describe the arguments relating to nature nurture, providing evidence for both sides of the debate. In addition, an analysis of this evidence will be given and a measured conclusion drawn from the evaluation of such. When attempting to understand the composition and contributing factors to the human personality, both nature and nurture should be taken into consideration, in order to develop a balanced conclusion.

When articulating this debate it is imperative to understand a definition of both nature and nurture. Nature is the term used to describe the genetic or inherent characteristics of a human and nurture is the term used to define the environmental factors, which contribute to the human persona. Both nature and nurture are now commonly viewed as intrinsic factors, which influence the character of an individual, thus psychologists are interested in the factors which influence behaviour both before and after birth.

However this debate has been one of the most controversial and long-standing issues within psychology. Philosopher John Locke, writing in the 17th century surmised that all humans are born "tabularasa", which is the Latin word, meaning "blank slate". Locke suggested that all individuals have the freedom to determine their disposition. This extends the reader an approximation on the length of this debate.
(http://en.wikipedia.org/wiki/Tabula_rasa)

In opposition to this claim was Francis Galton, who coined the phrase 'nature nurture' in 1883, who published a paper on "Hereditary genius", in which he suggested that typically all distinguished individuals within society were related and that genius is therefore passed on throughout the generations. Galton even went on to argue that individuals with lower levels of intelligence should be prevented from reproducing children. Extremists such as Adolf Hitler later adopted this view during World War two, which subsequently caused the holocaust. (Hayes, 1998, page 31)

The quest to distinguish between the biological characteristics of an individual and the effects of environmental stimulus has aroused the interests of many intellects for the past 300 years. Human traits are difficult to categorise as either due entirely to nature or entirely to nurture, and as such this has created crossover theorists such as Jean Piaget in the 1950's to extend credence to both nature and nurture contributing to the human persona. Piaget suggested that individuals develop in pre-determined stages, however this requires interaction with the environment. (Gross, 2005, page 582)

Traditionally, the nature nurture debate did attempt to categorise these human traits and as such, this separated psychologists into two distinct groups – empiricists and nativists. Empiricists are those psychologists who believe that the development of an individuals' persona derives from predominantly environmental stimulus, such as learning and experience. Psychologists such as J.B Watson in 1913 extended credence to "tabularasa". Watson believed that newborns have no innate content and therefore experience will dictate the persona of any individual. In contrast to this view, nativists such as Gesell in 1943 believed that an individuals' persona is determined largely by genetic influences, which have little to do with external factors. As Gesell advised

mothers, regarding a child's personality, to "give up the notion that you can either produce (except through inheritance) or that you can basically change it". (Hayes, 1998, page 2)

Genetic transmission is the term used to describe the process in which humans acquire biological characteristics from their parents. Cells within the body contain a substance called DNA which is arranged into long strands. These strands are referred to as Chromosomes, which are broken down into smaller units of DNA, known as genes. Humans are composed of 23 pairs of Chromosomes, half of which are passed from the biological mother and half from the biological father. As such an individual's genetic make-up is determined from the moment of conception. What is difficult to ascertain is how much these hereditary genes determine the human persona. The 23rd pair of chromosomes determines the biological sex into which the cells will form – two X chromosomes produce a female and an X and Y produces a male. (Hayes, 1998, page 3-4)

The biological sex of an individual is commonly considered to determine the gender of an individual. Gender can be defined as the role allocated to males and females at birth, according to their biological sex. However, there has been debate over gender and whether male and female genders have been created through the socialisation process which occurs from birth onwards. This view became popular in the 1960's, which led to the case study of David Reimer, which supports the nature side of the debate.

David Reimer, formally known as 'Bruce' underwent a routine circumcision on the 27th April 1966, at the age of 8 months. His twin brother was booked in for the same operation however Bruce was the first to undergo this procedure. The operation was performed by surgeon Jean-Marie Huot, who implemented the circumcision with a cautery machine, which was never intended for use on genitals. The results were horrific, and Bruce's penis was ruined.

Bruce's parents consulted Dr John Money a psychologist researching sexual development and gender identity, who advised them that the solution would be sex reassignment, which would involve the removal of Bruce's testicles and his gender reassigned as female. Money believed that gender was socially constructed and therefore not biologically predicted. Money therefore advocated that Bruce underwent this procedure to ensure a relatively 'normal' life. At the age of 22 months old, Bruce became known as Brenda.

Brenda was given female hormones to induce female characteristics, however, this did not aid her in feeling like a girl and by the age of 13 had suicidal tendencies. At the age of 15 Brenda's parents told her of her gender reassignment and from that point onwards Brenda renamed herself David and resumed her former male gender identity. David's twin brother Brian was deeply disturbed upon learning of his sister/brother's sex reassignment and later this developed into schizophrenia.

(http://en.wikipedia.org/wiki/David_Reimer)

This case study was the first case of sex reassignment carried out on an infant male with no previous history of sexual differentiation. This study illustrates the importance of biological factors when attempting to determine the persona of an individual, as in this case; environmental stimulus did not work to establish femininity where there was no biological connection to female characteristics. It highlights that there are biological characteristics, which cannot be removed regardless of the environment. However it also highlights that schizophrenia may not be hereditary, as David himself did not suffer the same illness, which his twin brother did, thus extending credence to environmental factors contribution to such.

One effective way to establish the extent to which genes contribute to the human persona is to study twins. There are two principal types of twins; Dizygotic and monozygotic. Dizygotic (DZ) twins are those who are created from two eggs, which have been fertilised at the same time, thus these twins will both have a different genetic make-up. Monozygotic (MZ) twins are those formed as one egg is fertilised but splits in two after fertilisation. These twins are identical and share the same genetic make-up.

Cyril Burt, who was heavily influenced by Galton's hereditary theory, carried out the principal body of evidence for twin studies in 1953. Burt's findings illustrated that intelligence was undeniably inherited. However, Burt's twin studies were based upon fabricated documents, which were devised by him to support his theory. Burt's findings, before the discovery of their fabrication, influenced English education legislation, which brought in the 11+ test. This test ascertained which school (academic or grammar) a child would attend depending on their IQ. (Hayes, 1998, page 33)

Psychologists presumed that by studying MZ twins raised together (RT) and raised apart (RA), and DZ twins RT, they could ascertain how much genetics or the environment contribute to persona. However, this is more complex than first assumed. In Shields 1962 study of twins, most commonly, one of the twins RA were often found to be raised by relatives of the parents or attending the same school as the other twin. Or, where twins were separated, they went to families of the same social class. This meant that both twins shared a very similar environment, which means that although studies like this provide evidence that intelligence is inherited, similarities could be brought through similar environmental stimulus. In addition, all twins have shared the same initial environment for nine months, in their mother's womb. Shields also suggests that because MZ twins share the same genes, this outward persona creates the way in which others treat them, thus "twins create their own (similar) environment". (Gross, 2005, page 719/20)

However, Bouchard and McGue's study longitudinal of twins, from 1979 to 1998 composed 71 pairs of MZ twins RA. Twins were all presented with a Life History Interview, Clinical Interview, Sexual Life History Interview, Child Rearing and Schooling Interview and the Briggs Life History Questionnaire. The results of this study have extended validity to human characteristics being mainly contributed by genetic factors.

There are frequently cases in which during the initial developmental process within the womb, an extra chromosome can become attached to the 21st set of chromosomes, causing characteristics such as Down's syndrome. One would therefore make the assumption that the characteristics of Down syndrome are solely extended by biological factors. However, environmental factors are now acknowledged as a significant input to these characteristics. It has been documented that children with Down's syndrome under-achieve as a consequence of low-expectations and lack of environmental stimulus extended by parents, deriving from their presumed inability to learn and possibly the stigma attached to this disability. Bayley et al, in 1971 suggested that with the correct 'environmental condition', the IQ of children with Down's syndrome could be improved, resulting in their participation in mainstream education. (Hayes, 1998, page 3-4)

It is not only genetic characteristics that are passed on throughout the generations. Some children also appear to inherit behavioural characteristics, such as similar mannerisms and habits, which are virtually the same as their fathers or Grandfathers etc. The genes, which have been passed on throughout the family lineage, are commonly presumed to account for these behavioural characteristics. However, there is another explanation – behaviour is learned through experience and in fact may have been 'picked up' through children copying their role models.

In 1913, J.B Watson advocated that his theory of Behaviourism should be the new way in which to scientifically study the human mind. Behaviourism is the school of thought, which maintains that behaviour is the only exterior representation of the mind and therefore the only way to observe the mind is to watch the product of its activity through behaviour.

Watson maintained that the characteristics of an individual are learned behaviour, apart from rage, fear and love, and as such stated that if he were given "a dozen healthy infants...I'll guarantee to take any one at random and train him to become any type of specialist I might select". Adapting Ivan Pavlov's unintentional discovery of classical conditioning, Watson attempted to conduct a similar study to illustrate the diversity of emotional responses, which can be conditioned in humans.

In his 1920's study of 'Little Albert', Watson together with Rosalie Rayner produced a laboratory experiment from which they could condition fear of an object into 'Little Albert', an 11 month old baby, who prior to the experiment was referred to as "stolid and unemotional". This study was successful in that the conditioning was achieved and 'Little Albert', now displayed signs of fear when presented with the object/s, which Watson and Rayner had conditioned him to fear - which prior to the experiment he had not. They had now extended credence to the theory that behaviour is learned through experience. (Gross, 1999, pages 295 -301)

In 1938, B.F Skinner developed operant conditioning, whereby he surmised that all human behaviour is produced through conditioning, via positive or negative reinforcement. Operant conditioning can be described as the action of an individual, which is positively or negatively reinforced directly

after or during the action. For example, bonds with particular individuals are possibly made subconsciously through operant conditioning. Therefore if an individual is presented with an experience that was pleasurable and rewarding it will be repeated. This can also work in reverse; if an encounter was not rewarding then typically it will not be repeated. (Mukherji, 2001, page 12)

Also relevant to the nurture debate, is the case of Genie Curtis in 1977, who had been severely abused by her parents and kept locked in her bedroom in relative isolation, for most of her life. Her development process had been obstructed in various ways. She had been restricted in her movement, by being tied to a "potty chair", confined there for lengthy periods which consequently left her with walking difficulties. She also had difficulty eating solid food which was a result of being restricted to eating baby food. Genie was also linguistically impaired and made no noises as a result of her father beating her every time she vocalised. As such, she became almost entirely mute. This aspect of Genie's abuse coincides with operant conditioning and the negative reinforcement aspect of such. The words she did know were short words or phrases such as "stopit" and "nomore".

Genie was accidentally discovered by the authorities aged 13 and hospital staff believed they could nurture her back to normality. Psychologists were in disagreement regarding whether Genie was brain damaged at birth or whether her learning disability was a consequence of her horrendous environment. She stayed with the Rigler family for the next 4 years during which time Genie learned to smile and construct basic sentences and use sign language, which may suggest that her previous environmental stimulus had a lot to do with her stunted learning ability. Genie also had difficulty in forming close attachments to people, however she did form a bond with the Rigler family and gradually became more sociable, extending more credence to environmental factors.

(<http://www.colchsfsc.ac.uk/psychology/Genie.htm>)

This case study highlights the point that individuals need interaction in order to learn basic skills and that basic skills such as speech, movement and emotions need to be learned and encouraged in order to develop adequately. It also points out that emotions are a learned behaviour and that if neglected emotionally, children have difficulty in expressing emotions themselves. This can also be noticed in mild cases, such as families who are undemonstrative and who can produce children who are similarly less demonstrative. Social skills are learned behaviour which need practicing and developed, as are cognitive skills, such as walking, which also requires practice and encouragement.

Crossover theorists such as Hebb, who in 1949, attempted to take this debate back to the fundamental basics of the development of the egg, Hebb explained that in order to initially produce the egg, there needs to be a genetic component, without which the egg will never exist. However, without the environment the egg cannot continue to exist either. Therefore, it is a composition of both genetics and the environment, which allows humans to live and develop. (Hayes, 1998, page 8)

In support of Hebb's theory, is Jean Piaget's theory which states that children naturally develop in pre-determined stages (except in the case of brain damage). Piaget explains that a child is "an organism adapting to its environment, as well as a scientist constructing its own understanding of the world". For instance, a child who is experimenting in the bath will discover which toys sink and which toys will float, by actively playing with the toys and discovering that the rubber duck floats but the action man sinks. This is presuming the child has toys to play with in the first instance, which is dictated by his environment. (Gross, 2005, page 582)

This theory is known as constructivist theory as Piaget believed that learning is an active process, whereby from birth children use their innate abilities to construct ideas and form opinions of the world, through actively exploring their environment. Thus concluding that it is a mixture of both inherited qualities and environmental factors, such as family and friends, which contribute to learning and the development of a person. Therefore a child will learn, from his own unique perspective, but environmental factors contribute equally to his understanding and development. (Mukherji, 2001, page 23)

The psychoanalytical approach deals with the subconscious aspect of learning and development, as opposed to conscious learning. Sigmund Freud in 1920, explained that human behaviour is dictated by two instincts, one positive and one negative; the libido, which is the motivation for survival, reproduction and well-being, and death instinct, which motivates behaviour such as, aggression, anger and guilt. Freud suggested that a balance between these instincts therefore dictates human behaviour.

Freud distinguished three parts, which compose the structure of the human personality. The id is the part of the person, which is centred on preserving oneself and obtaining basic human needs. The id is the immature, irrational and emotional aspect of the human personality, otherwise known as the eternal child, which only operates on the "pleasure principal".

The ego becomes apparent when the child starts to understand that it is not realistic to obtain wants and desires all the time – this comes from interaction with the world – such as not being allowed every toy or sweet in the supermarket. The ego operates through the "reality principal" and therefore maintains the balance between the id and the superego. Therefore it is the ego's responsibility to obtain pleasure for the id, whilst understanding long-term consequences. The ego is therefore known as the adult.

The last part of the mind to develop is the superego. This part of the mind is divided into two; the conscience and the ego ideal. The superego is the part of the mind, which is dictated by the norms, and values of the internal family environment and external environment. The superego has accepted the rules of society and sets about enforcing them via the conscience, which tells the individual they are doing wrong or right via what has been learned through the environment. The superego endeavours to attain perfection, which may be unrealistic. This is where the adult (ego) comes into play, by rationalising feelings of guilt, which may be too severe. The ego ideal takes moral values

from the parent/s and makes them the individuals' own values. As does the conscience, which basically reiterates to the individual what is bad or punishable behaviour, dependant on what has been learned from the parents.
(<http://www.wilderdom.com/personality/L84StructureMindIdEgoSuperego.html#Id>)

Highlighted in Freud's theory is the merger of both innate psychological characteristics and the environmental factors, which both significantly contribute to the human persona. Freud illustrates that the id is still apparent throughout maturation and its demise is dependant on the environmental factors, which either enforce this selfish behaviour or detracts from it. The ego's development is also subject to environmental stimulus and subsequently cannot develop without interaction, to realise that the demands of the id are irrational. Therefore the ego needs stimulus to learn negotiation – a key social skill. The superego must understand right from wrong to allow it to fulfil its purpose. Learning right or wrong is also an interactive process, which requires a conscience. However, the conscience is only available to those aware of what qualifies as wrongdoing. If this is not learned via the environment or parents, it may never develop.

In this writer's opinion, biological influences are vitally important pertaining to gender. The case study of David Reimer from 1966 onwards, contributes to understanding the typical inherent need to fulfil predetermined aspects of genetics such as the 23rd chromosome determining the sex of an individual. However, this is possibly the most difficult aspect of the human persona to alter, without the individual feeling the need to change (sexual differentiation). Perhaps it would have been easier to alter David's habits, such as his mannerisms, via the environment, as opposed to changing his gender. The environment is unquestionably important when attempting to ascertain which element – nature or nurture – contributes more significantly to individual character. With reference to Watson's 1920's study of 'baby Albert', it is possible to extend a significant amount of credence to the environmental factors contributing to the formation of personality. Baby Albert concluded the classical conditioning experiment with phobia 'in hand', after a mere 6 weeks of conditioning. In addition, the Freudian concept of the three inherent elements of the mind, which as Freud suggests all function intrinsically with the environment, offers significant credence to the crossover theory. In conclusion it would appear that an amalgamation of both nature and nurture contribute to the personality of an individual.

Bibliography

Gross, R. Key Studies in Psychology, 3rd, Hodder & Stoughton, 1999.

Gross, R. Psychology – The Science of Mind and Behaviour, 5th edition, Hodder
Arnold, 2005.

Hayes, N. Psychology – An Introduction, 3rd edition, Pearson Education
Limited, 1993.

Mukherji, P. Understanding Children's Challenging Behaviour, Nelson Thornes,
2001.

http://en.wikipedia.org/wiki/Tabula_rasa

http://en.wikipedia.org/wiki/David_Reimer

<http://www.colchsf.ac.uk/psychology/Genie.htm>

<http://www.wilderdom.com/personality/L84StructureMindIdEgoSuperego.htm>
l#ld