Is intelligence nature or nurture

Technology, Artificial Intelligence

The statement 'nature trumps nurture' Is referring to the nature versus nurture debate that has been ongoing in psychology since Its rolling. The debate alms to examine to what extent human development Is Influenced by our genetic Inheritance (nature) and by external environmental Influences (nurture). One principle which Is focused on within this debate is intelligence, which often refers to IQ or established factor 'g' (Superman, 1904).

Overall, research suggests that genetic variance in intelligence increases throughout development, explaining around 50% of variance in adulthood (Chipper, Roving & Palomino, 1990), whilst environmental influence decreases throughout this developmental period (McGee, Boucher, Laconic & Liken, 1993). This essay will assess the influences of both nature and nurture in relation to intelligence and shall finally conclude that although it is clear that heritability of intelligence Is extremely Important, environmental influence still remains relatively influential, as social context can determine how genes are expressed (Kurd, 2006).

Assessing the biological Influence relating to Intelligence Is often examined using twin studies. This Is because If Intelligence Is heritable, we expect to see highly similar levels (concordance rates) of Intelligence In Individuals who share the same genetic material (minimization twins) and less similar levels in dogmatic twins who are thought to share around 50% of their genes. Palomino (1994) assessed results from over 10, 000 twin studies and found that minimization twins correlated higher (0. 8) for intelligence than dogmatic twins (0. 5), which supports the view that intelligence is a irritable trait.

In addition to this, examining identical twins that have been reared apart provide us with further genetic evidence as in these cases; minimization twins often produce highly similar intelligence test scores despite being reared apart and subjected too different environments (Shields, 1967). Therefore, if environment was an influencing factor we would expect to see concordance rates decrease. However, Boucher, Liken, McGee, Seal and Telling (1990) assessed over 100 sets of twins and triplets reared apart, and subjected them to Intense psychological assessment.

The results demonstrated that at least 70% of the variance in IQ was found to be due to genetic variation. This evidence strongly suggests that intelligence is largely dependent on our genetic material that we inherit from our parents, leaving little room for environmental influence to infiltrate the development of this trait. Moreover, further biological factors influencing intelligence may come from physical properties of our organism determined by our genes. Jensen (1998) suggested that larger brain size actually related to higher levels of intelligence, and this has been confirmed by a eat-analysis carried out by McDaniel (2005).

Upon analyzing the results of several brain imaging studies, McDaniel concluded that there Is a relationship between whole brain volume and psychometric established measures of intelligence. Additionally, Hunt (2007) found that tissue density and white matter within the frontal and parietal lobes In the brain correlate strongly with performance on intelligence scales in young people (Chemistry, Wilkes, Darwinism & Holland, 2005) However, it

has arisen that there are methodological flaws in some twin studies used to support this debate which could inflate results.

For example, a study by Shields (1967) found strong correlations reflecting intelligence in minimization twins reared apart, however the sample differed in what ages the twins/triplets were separated, and some twins were raised by secondary family members which could have inflated genetic variance estimations (Boucher et al, 1990). More importantly, although genetics highly correlates with intelligence, correlation does not imply causation.

Despite this, it is due to this profound amount of evidence demonstrating the role of genetics in intelligence that many researchers believe that nature does trump return in this case. This could have negative implications as children from less intelligent families may feel inferior to children from academic families. It must be taken into account however that if heritability is seen as explaining approximately 50% of the variance in intelligence, there is still another 50% that cannot be explained by our biology, and some of this variance, amongst unexplainable factors, is due to the environment (Palomino, 1994).

Adoption studies provide environmental influence estimates as in these scenarios, unrelated individuals are subjected to the name environment. Boucher (1998) assessed several adoption studies and concluded that shared environmental influence had a relatively small, close to zero effect on overall intelligence. Contrary to this, Chipper et al (1990) found that the magnitude of the shared environment parameter increases with the degree of relativities.

It was suggested that shared environment accounts for 35% of variance in intelligence in twins, however this decreased to 22% for siblings. It has been noted by Chipper et al (1990) that failure to take this into consideration could inflate genetic irritability estimates, thus deflating approximate environmental estimates, potentially skewing conclusions drawn. Moreover, there is strong evidence suggesting that the environment plays a more important role in intelligence during the early years of development, as the heritability influence is thought to increase with age.

McGee et al (1993) found that the correlation intelligence between minimization and dogmatic twins increase gradually from early (20-30%) to middle childhood (40%), followed by a great increase in adulthood (50%) suggesting increased genetic influence. This means that more variance in intelligence could be explained by the environment during childhood. This has been proven by Jensen (1998; 1997) who found that the environment accounts for around 55% of variance in IQ during early childhood, however this figure diminishes to near 0% in late adulthood.

Furthermore, as suggested by the Nature of Nurture Theory (Palomino & Bargemen, 1991) it could be the case that our genes influence the way we interact and become involved in our environment, meaning that even the suggested small contribution of nurturing in relation to intelligence is controlled by our genetics. An example of this can be seen by the established heritability of the personality trait 'openness to experience' (Boucher & Lanolin, 2001), which correlates highly with intelligence

(Camphor-Premiums Mountain, & Burnham, 2005) more so than any other trait.

This could be due to the fact that people who score highly on this trait are more likely to interact with their learning environment (Gaston, Lee, Vernon, & Gang, 2000) resulting in increased intelligence scores. However, a large majority of the evidence studies. Some researchers suggest that this sample is not representative of the mineral population due to the adoption situation itself (Banding, 1993), as adoptive parents tend to be more affluent than the general population of parents (Morton, 1987).

Additionally, although research tends to belittle the influence of environment relating to intelligence, there is one observation that cannot be explained by genetics. The so called 'Flynn effect' (Flynn, 2007) is an observed huge gain in IQ scores from generation to generation, shown by a continuous and positively linear correlation. These IQ gains suggest mass influence of the environment as genetics do to offer an explanation for this occurrence, and this in its self suggests that the environment must exert influence on intelligence to some extent.

One explanation suggested to explain this phenomenon is improved nutrition (Lynn, 1998), as high vitamin ingestion as can be seen in the modern world, has been found to link with higher intelligence scores (Benton & Roberts, 1998). Upon summarization of this evidence, it must be noted that there are disagreements surrounding how intelligence should be measured. 'Intelligence' is often measured by an Intelligence Quotient (Q) which is a set

of standardized tests which are designed to measure a person's cognitive abilities.

Although research has found that it has adequate statistical validity for numerous clinical purposes (Anastasia, Anne, Urbana, Susann, 1997), in recent years the scale has been criticized. It has been pointed out that the brain is one of the most complex objects known, so using one standardized measurement to assess its ability cannot be correct or valid (Collins, 2012). The IQ test is accused of being racially bias (Fagan & Holland, 2002) and not examining all aspects of what defines 'intelligence' (McClellan, 1973).