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## Nature Versus Nurture: A Brief Look At Its History

What could be assumed to be the dominate deciding factor in what a person becomes? Is it that person's ancestors, how they lived and what they looked like that determines the makings of a person. Or would it be outside influences that push and guide a baby into child and child into adult. Which of those two paths is the commanding aspect that establishes what type of personality traits or intelligence a person grows up with? That question is the fundamental issue surrounding nature versus nurture. The topic of nature versus nurture has been talked about and debated over for a little over 2,000 years now (Viney, King, & Woody, 2013; Spinath, Spinath, & Plomin, 2008). Many famous and interesting philosophers and scientists have attempted to find an answer for the question in their time. The nature platform is simple what we inherit from our parents and our ancestors matters (Viney et al., 2013; Spinath et al., 2008). The idea that genetics and heredity are the most important factor in regards to a person's development. Things that happened to our parents that alter our genetic code and make decisions sometimes before we are even born, and multiple genomes are responsible for change (Spinath et al., 2008). The other side of the argument is nurture, with this philosophy instead of looking inside we look outside of the body (Viney et al., 2013). The environment that we grow up in will stimulate most of the development that takes place. To expand upon the meaning of environment what this includes can be how the parents raise the child, what type of diet the child had during development, and the physical environment itself aids in the development of a child (Spinath et al., 2008). In both arguments there are not a single factor that takes precedent as the total reason for human development. And as our understanding of our world and its mechanisms increases history has tended to favor one over the other.

The earliest beginnings of the nature versus nurture debate we have seen in the works of Plato (c. 428 - c. 347 BCE) who believed that children were born with this clean unused slate that the world, family, and environment imposed ideas and influences into their young minds (Viney et al., 2013). What Plato says about clean slate is an early version of the common term "blank slate view" that is popularized in the nurture argument. What Plato gives us is the initial version of the nurture (Viney et al., 2013). Plato believed that a community who focused on learning more about the world and then passing that teaching along to the next generation built a better society as a whole (Viney et al., 2013). Although Plato was the first to coin a phrase and believe system that fell in line with the nurture side of the argument it is popularly believed that John Locke came up with the original precedence. John Locke (1632 - 1704) originally thought of children being a "white paper, void of all characters, without any ideas" (as cited in Viney et al., 2013). Locke was a fierce critic of Dante Alighieri's (1265 - 1321) view of children having "innate moral ideas" and sense of good and evil (Viney et al., 2013). Instead Locke believed that children had no sense of morality at all or any latent capacity. Instead Locke argued that a child's mind was not provided with any morality. Locke believed that we learn from our senses and from past experiences (Viney et al., 2013). The text states quite matter of fact that Locke believed strictly in the environment being the largest determining factor in human outcome. Locke did give credit to what he called natural abilities and biases that are difficult to overcome but they did not sway his opinion (Viney et al., 2013). Scientists agreed with the ideas set forth by Locke for several decades until it was Charles Darwin (1823 - 1913) who came up with the theory to challenge the ideals set forth by Locke. Darwin's book *The Origin of Species* (1859) challenged the environment centered view of human development. In his book Darwin argued

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that species change as a result from their environment, but the changes that take place are slow and occur over generations of individuals (Viney et al., 2013). The basic blueprint that Darwin argued was that the environment changes in some aspect, and a species slowly adapts to that change in order to better survive the environment. His proof for this argument was several different birds who different species and were unique to each island he had visited in the Galapagos but were still part of the same genus of animals (Viney et al., 2013). Darwin's ideas directly contradict what Locke had established and argued a century before that heredity matters. Darwin's observations about the world showed that traits and characteristics can be and will be passed down onto later generations (Viney et al., 2013; Spinath et al., 2008). The scientific community greatly received Darwin's theory about evolution. This became the standard ideology towards human development. Darwin's work favored the nature side of the argument which became a reflection of the time. Contrasting to his time period Thomas Howells argued that our development is a mix between hereditary and learned behavior (Howells, 1945). Howells talks about parenting and instincts in this regard but his point is valid; parenting is something that you learn and is not a behavior that comes instinctual. Howells does give credit though towards heredity in that for us humans learning a behavior comes much easier to us than other species (Howells, 1945). But Howells' main idea in his article is that our development is a mixture of environment and hereditary.

More modern theories about the nature versus nurture argument did not develop until scientists had discovered Deoxyribonucleic acid (DNA) and began to have a greater understanding of its influence on human development. Not long after Darwin's book *The Origin of Species* was published that a scientist by the name of Friedrich Miesche (1844 - 1895) discovered the first hints of a nucleic acid in pus (Dahm 2008). A little later on Phoebus Levene (1869 - 1940) identified and cataloged the basic building blocks of DNA and Ribonucleic acid (RNA) in his studies (Levene 1919). It was due to the contributions of Miesche and Levene that later scientists were able to determine that DNA was the cause of hereditary changes. While this was going on Sir Francis Galton (1822 - 1911) introduced a way of studying human behavior that revolutionized psychology, the Twin Studies. In his studies Galton used twins to study and identify the role of genetics and environment between two twins (Viney et al., 2013; Rende, Plomin, Vandenberg, 1990). The twin studies allow scientists to test the theory of environmental influence on development because many twins carry the same DNA pattern in their bodies. This tells us that any differences in abilities of the twins may come from an outside source. However the difference and influence of genetics on twins was not fully realized until Edward Thorndike (1874 - 1949) conducted his testing on twins, using psychological tests available at the time (Viney et al., 2013). The text makes note that Thorndike did believe that "genetic principles far outweigh learning and should not be neglected" (Viney et al., 2013). It was because of Thorndike that the gravity of studying twins was seen by the scientific community, however neither Thorndike nor Galton recognized the difference between identical and fraternal twins in their studies (Viney et al., 2013; Rende et al., 1990). It wasn't until Wilhelm Weinberg and his colleagues studied variances in genetic diseases and how often they occur that Weinberg discovered a difference between identical and fraternal twins and the environmental influences that affect them (Crow, 1999). It was because of this discovery that the understanding of how genetics and hereditary changes affects future generations. Because of these discoveries scientists believed that there was a stronger pull towards the nature argument. However with the discovery of epigenetics the nurture argument had gained more significance. The term epigenetics was first coined by Conrad Waddington (1905 - 1975) and it was used to describe the relationship between genetics and the mechanisms that allowed them to come into being (Dupont, Armant, & Brenner, 2009). With the rise in understanding of genetics in the mid 20th

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century epigenetics would come to mean that environmental influences, such as diet or physical environment, would cause genetic genotype to become active or deactivate (Dupont et al., 2009). This means that even though genetic components would determine aspects of a person's life environmental influences could also affect the development of heart diseases, cancer, or diabetes (Dupont et al., 2009). Thus the subsequent understanding of epigenetics evened the playing field between nature versus nurture at a time when it seemed that nature would win.

It is the opinion of the author that the majority of our development as humans takes the form of both environment and genetics. Similar to what Howells (1945) and Dupont et al. (2009) state in their articles environmental factors such as nutrition and diet, exercise, birth weight, exposure to toxins, and chemical environment can all affect human development. It is well known that children in low-income families often will have a poor diet and nutrition and that the lack of these essentials can lead to lower intelligence and poor test scores (Dupont et al., 2009; Lovasi et al., 2014). It is also known that exposure to harmful chemicals or living in a close proximity to industrial areas can negatively affect children's health and intelligence (Lovasi et al., 2014). It is clearly evident that environmental factors play a large role in development but there must also be a reminder that genetics play a role too. Many mental disorders are found to have genetic components which are passed down onto future generations (Viney et al., 2013; Howells 1945; Lovasi et al., 2014). Thus it is the opinion of this author that in regards to nature versus nurture there is no clear defined cause that is dominate in human development.

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