

Nature vs nurture
twins studies
psychology essay



This question will simply not disappear. And by no surprise in reality, it asks whether humans are free to behave as they want or whether their actions are encoded in them. In its modern nature, this controversial debate is based on terms of molecular genetics. Is the way we behave depended on gene structure, or is every human formed by his or her environment? (Trefil, 1996, para. 1) Throughout the middle term of the century, Americans religiously put faith in the second of these options. Human beings, we believed, were infinitely improvable, and if people behaved in a bad way, it was because of the environment they were surrounded by. We believed we could fix the environment and could make perfect human beings. On the contrary, evidence proved to be misguided strongly, heretically weak (Trefil, 1996, para. 2). However, times are different now. We have realized that many diseases are backtracked to our DNA, so we have also come to partially understand that genes play an important but not totally exclusive role in finding out our behavior. The proof that altered the perspective of the behavioral-science mainstream came in many shapes. Long studies of animals, rats, and fruit flies proved strong genetic connections on behaviors such as learning and reproduction. More precisely, the large archives of long and thorough studies of twins can show us the significance of genetic factors in mental disorders and a different variety of behavioral traits from the random interests of adolescents to general cognitive ability. These kinds of studies typically observe either identical twin, which share the same kind of DNA, especially identical twins separated and raised in environments different from one another, or at fraternal twins, who share different DNA but were raised in very similar environments (Trefil, 1996, para. 3). We need ask ourselves, what are the differences when it comes in terms of physical,

cognitive, social-emotional; and the human developmental stages? But before we begin looking at does differences lets get to know a little more about twins and twin studies.

Twin studies are a way that scientist and researchers use to study humans when it comes to figuring out what influences and individual the most; is it their genetics or their environment. Twins studies were first performed in 1876 by an English anthropologist Francis Galton (The Library Index, 2010). Francis Galton performed the twins study because he wanted to investigate the extent to which the similarities of twin changes during their developmental process (The Library Index, 2010). Galton like us was also interested in finding out what was more influential in an individual's life their genetics or the environment.

A twin study is when the researcher takes both identical twins and fraternal twins and tries to compare and contrast information from both pairs of individuals by running test or just simply by observing the individuals. Identical twins happens about one-third of all births and it is when one ova or egg is fertilized by one sperm (Pekkanen). After the ova and the sperm fertilized the zygote divides and form two different embryos. Identical twins are always the same gender and also they share a hundred percent their genetic makeup. Fraternal twins on the other hand occur when two sperms fertilize two different ova or eggs at the same time. So what happens is that two different zygotes are formed and therefore two embryos are formed (Pekkanen). Fraternal twins share fifty percent of their genes and they can be the same gender or opposite genders; moreover, they are genetically similar to regular siblings (Pekkanen).

Why are twins' studies so useful when it comes to study the effects of nature and nurture? Twins especially identical twins are the closest we can get to a natural clone of an individual. Because identical twins share the a hundred percent of their genes it is easier to tell whether nurture plays a big or a small role in an individual's life. Fraternal twins are also good to study the effects of nature versus nurture because fraternal twins only share fifty percent of their genes so if any changes occur for example in the same environment then that lets us as researchers' know whether nature plays a big role or a little role in an individual's life. Now that we have gotten enough information about nature and nurture as well as twin studies, we can start exploring how researcher have develop all the different theories on what really is that helps shape an individual. Is it nature or is it nurture?

Physical Development

Our book states that physical development is related to how the brain and the nervous system develops as well behavior development. Also in the physical development it is included the muscles, sensory capabilities and the need for food or a drink. Many factors help shape the physical development in an individual. The genes on an individual are the base line for physical development and then the environment helps shape the person according to what the person allows to come in from the environment.

As we know identical twins have the same genes; however, many studies show that identical twins are not physically or behaviorally identical to one another. A lot of factors can help make changes, for example, if the twins do not have the same diets and nutrition then they are more likely to have different heights and even weights (" Nature vs. nurture," 2010). Also when <https://assignbuster.com/nature-vs-nurture-twins-studies-psychology-essay/>

identical twins start to grow up they find ways to make themselves different from the other twin. They find ways like cutting their hair differently, wearing different clothing styles, having different friends and like different social activities (" Nature vs. nurture," 2010). As for fraternal twins they only share half of their genes, but they also find ways to make sure that they are different from each other. Everyone wants to be an individual and twins are just like everyone else they want to find ways to be individuals and the environment helps with those decision.

Cognitive Development

Cognitive is related to the thought process and knowledge. When studying the cognitive process of humans many scientist use twin studies to get their results. Since identical twins are the closest the scientist can get to a clone of an individual because they have the same genes; the scientists can study how the environment shapes their intelligence. Also scientists use fraternal twins because they only share half of their genes, so they are just like regular siblings scientists can examine whether their genes shape their intelligence.

Cognitive studies have been done for many years. One of the first scientists to study the role of genes in intelligences was Francis Galton (Bryner, 2006). Galton's theory is that parents transfer intelligence to their children. However, now days many scientists believe that genes and the environment work together to help cognitive development on every individual (Plomin, & DeFries, 1998). Amy Wax on her article mentions that genes and parents do not just influence their children's mental abilities, but rather that home environment, culture and peer influence also has an influence in their mental

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ability. Many scientists do agree with Amy Wax on how genes and environments work together on developing mental ability. However, it is believed that most of the influence does come from genetics and from the interaction with direct family members (“ Genetics and the,” 2010).

Today’s scientists use the IQ testing method to test an individual’s intelligence. The IQ test measures an individual’s ability to reason and to solve problems (“ Genetics and the,” 2010). The IQ test has different versions of the test that measure different types of intelligence by using reading, comprehensive and mathematical problems. When comparing the results of family members the results are closer together than the scores of random people.

Social Emotional Development

There are significant discoveries that were made using different research methods to find social and emotional differences in twins. Political and social attitudes, ranging from divorce to the death penalty, were found to have a strong genetic influence in one Australian study. A Swedish study found genes significantly influenced two of the so-called “ big five” personality traits-“ openness to experience” and “ conscientiousness”-while environment had little impact. In contrast, environment influenced “ agreeableness” more than genes did. (The two other traits are “ neuroticism” and “ extroversion.”) Another study, at the University of Texas at Austin, found that personality in identical twins correlated 50 percent and in fraternal twins about 25 percent (Neimark, Cochran, & Dossey, 1997).

Twins tend to start dating, to marry, and to start having children at about the same time. David Lykken, Ph. D., and Matthew McGue, Ph. D., at the University of Minnesota, found that if an identical twin had divorced, there was a 45 percent chance the other had also. For fraternal twins, the chance was 30 percent. The researchers think this is due to inherited personality traits. Both optimism and pessimism are heavily influenced by genes, but shared environment influences only optimism, not pessimism, according to a study of 522 pairs of middle-aged identical and fraternal twins. Family life and genes can be equal contributors to an optimistic outlook, which influences both mental and physical health, but pessimism seems largely controlled by genes (Neimark, Cochran, & Dossey, 1997).

Human Development Stages

The first stage of human development is the prenatal stage. When we are talking about the prenatal stage it includes conception to birth. The prenatal stage of development begins once the egg has been fertilized. This happens when the man's sperm is released and meets an egg which then begins the fertilization, when the egg and sperm meet this is known as a zygote. This is the first stage of pregnancy. According to the text *Child Development* by Robert Feldman twins can also develop at this stage. For twins to occur there has to be a split off of the ovum within the first two weeks of fertilization. If the split off occurs the text states that there are two different types of twins that can occur; the first one is called monozygotic twins. Monozygotic refers to the twins be genetically identical. The second type that could occur if there is a split off is dizygotic twins. Dizygotic twins occur when there is two separate eggs are fertilized by two separate sperm. Once the zygote is

formed, whether it is single or multiple, it will then implant itself into the women's uterus. A placenta will then develop to support the embryo. The term embryo is referred to as the second stage of pregnancy when referring to the baby. The placenta will be the necessary nutrients to the embryo. Then an umbilical cord will form which will be another source for the embryo to get nutrients. The Embryo stage will last from 3 weeks to 8 weeks of pregnancy. The next stage is considered the fetus stage. This stage is from 8 weeks to birth.

The second stage of human development is infancy. The infant stage is from the age of one month to one year, although there are variations of definition from the age of one month to the age of three years. To be specific a new born is considered from minutes old to the age of one month. During the infant stage the infant will go through several developmental milestones. According to Child Development text a chart lists some of the stages. It will begin with at approximately three months old the infant should start to roll over, then progress to rolling over. At the age of five months the infant should begin to sit up without needed support, the progress to standing with holding on to something. Next the child should be able to being grasping items using thumbs and fingers, followed by standing alone by about eleven months. Once the infant has mastered standing alone the next stage would be walking around twelve months. The child will progress to grow and develop many gross and motor skills as they develop. (Feldman 130)

One thing that many especially parents love about the infancy age would perhaps be watching their personalities develop. During this stage the nature vs. nurture will certainly be scrutinized. Let's say we have identical

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twins; if one twin is outgoing and always going for the top that he wants while his twin just sits back and kinds just lets things happen around them, the parents might talk about how one has the personality of the mother, while the has the personality of the father. They might also consider a nurture trait while watching their twins play to be something that was learned perhaps by disciplining. If the father is more strict than the mother so when the father is around the children are a little more apprehensive to play freely just out of fear that they might get in trouble by their father; whereas the mother is more loving and allow the twins to explore more and develop more of their personality freely. This could be argued to be a nurture trait between the twins that will vary based on the emotions that they are feeling.

Natures vs. Nurture run very close together, but are very distinctive. It is fun to watch and try to distinguish between the two and see who has which traits especially when you have twins. There are several studies such as the “Twice the Talent” article that have examples of how nurture vs. nature and the process of the human growth and development are all tied into one story. It’s all around us every day.

Early Childhood development most commonly refers to the time between birth and schooling, at approximately age 3. Many people in the field agree that this developmental period is the most critical and the most liable in any child’s development. There has been a lot of research as to whether a child’s environment (nurture) or a child’s genetics (nature) are most affecting. My preliminary hypothesis is that there is a balance between the two, although it is not half and half. During this time period many amazing milestones are

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reached. Although according to studies, when it comes to those wonderful milestones of physical development, “normal” is a relative term, meaning every child accomplishes things at an individualized pace within a very clear time frame. Development includes everything from physical development, where the child starts out unable to roll over and proceeds to crawling, walking and running, to mental development where the child goes from barely expressing more than a few emotions, to speaking complete sentences and telling stories, to brain development specifically. Studies agrees saying, all periods of brain development probably begin within the first years of life. Every child goes through many phases in a comparatively short amount of time. There is a sizable amount of debate as to what is influential to early childhood development. Some people, particularly geneticists, say that nature plays the most important role. These people believe that children inherit a lot of their looks, personality, and skills from their parents and the children will, essentially, turn out to be a combination of their parents. Others say that nurture is the most important. They believe that a parent can control the type of person their child will become by different parenting techniques, interactions and home environments. There is, as in any debate, a middle ground that a lot of people think is how development works, and there is evidence that this may also be accurate.

Nature is a quite specific term. It refers to “genetic material that controls ones appearance, temperaments, and abilities”. These are a preset list that cannot be altered and is inherited from both of the parents. This can include things such as height, eye color, ability to read or learn a language, temper or patience and many, many more. Some of these things such as temper are

debated as to whether or not they are part of your internal nature, which makes nature versus nurture an even more complicated debate. One of the earliest signs of genes showing through is the first emotions. " Only minutes after being born, babies in the nursery will feel sympathy and empathy for each other and when one starts to cry, others start to cry too" They are not taught to do this, it's just natural, they barely have had contact with adults. Emotions are essentially pre-programmed" (Gable). Everyone is born with the genetic ability to express emotions of a big variety from joy to rage to fear, but they have to be in a situation that brings them out. For example, a baby will not experience rage often. It would probably occur later on in life when the child is older and he or she gets in an argument. Brain and physical development are also essentially pre-programmed. There is a specific pattern that the various parts develop in, which is related to each other exactly. The length of time it takes to go through each developmental phase does vary from child to child but that time amount is often genetically fixed, varying on a week or more scale, depending on the phase. Physical development, which is more influenced by nature than nurture compared to mental development, basically moves from head to toe. First the head and neck gain control so the baby will raise its head while lying on its back. Language is another of the many things affected by nature. Before a baby is even an hour or so old it will recognize his native language and respond differently to that versus other. Babies also have the ability to hear, and thus learn, all the various sounds in any language but unless this is practiced and regularly heard they will lose the ability within the first year in life. An example of this would be a study done on Chinese babies. Babies of various ages and language exposure were tested to see whether they could tell the

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difference between an r and an l sound which Chinese adults have difficulty with. Babies with regular exposure to English and babies under age one could distinguish one from the other but other older babies had problems. The reason this is significant is that it shows humans are born with the ability to understand a great range of language even if it is not one that will be used and it is a part of your nature, when previously it was thought that all language skills must be taught.

Now, Nurture abides of many things. It is the environment the child is raised in, including parenting, early schooling, the home, eating habits, interactions with people and many other things, but excluding genetics. As Sarah Gable says, "The way a parent nurtures a baby has a profound effect on how the child develops". "Stimulation is a very important part of brain development, which consists of anything that causes the brain to be used, through any of the senses". Without the stimulation the brain has no opportunity to develop, and because the human brain triples in size from one quarter to three quarters its adult size within the first year, it's very important that this occurs early in life. "Stimulation doesn't have to be anything as complex as piano lessons or vocabulary flashcards though". It can be as simple as hanging a mobile over the crib to give the child something to visually focus on. Vision is a particularly good sense to work on improving, as babies only truly see light, shadow, and some colors for the first couple of months. "By age two the baby usually has 20/60 vision, which continues to sharpen to about 20/25 by age six"(Gable). Other stimulation can be anything from playing with new toys to regularly talking to the baby and pointing out people, objects, and other things as you talk about them. This will help the

baby learn to make affiliations between speech and objects, which is how they learn the words for things, and also get the first interactions that are important. Gable says, it is also great to expose babies to new places and people, even if it going next door to your friends house with you. The way almost all studies are done with babies most often involve giving a baby a pacifier with instruments inside that can measure how fast and hard they are sucking on it. After the baby is given the pacifier various sounds are played or images are shown and the reactions are observed and recorded. Faster and stronger sucking on the pacifiers occurs when the baby is more attentive or astounded. As mentioned before, some of the arguments help both sides of the debate. For instance, although emotions and their reactions are pre-programmed, the situations that bring them out would be categorized as nurture which leads me to believe that nurture may be a bit more important. Also, with the topic of language, the idea that after a year babies start to lose the ability to hear the other phonetic sounds outside of their own native language means that without the regular exposure (nurture) they lose this. It's got to be nature because they are born with the ability, but its nurture because without use they lose it.

As twins begin their adolescent years they seek out to establish their own unique qualities. While one teen may be interested in sports the other may be interested in music or art. There has not been a 100% guarantee that those interests have been linked to their genetic makeup or environmental factors. Although behavioral scientists have determined that genes play a role in personality development they haven't yet determined how the genes interact in a particular personality trait. There is no gene for music or sports,

so with that said environment must play an equal role. As teens begin to explore new friendships, they tend to seek out friends that are somewhat like themselves. One of the twins may be very shy and the other more outgoing. Choosing friends seems to be more on the environmental side of the scale. Some scientists have also believed that genetics contribute to most behavior attitudes but studies still have not shown certain proof. Being around twins, it may seem believable that their likes and dislikes can be related to their surroundings. On the other hand, when they are apart, sometimes they do some of the same things without even knowing which may be a part of the gene factor. It seems to be evident that both genetic and environmental factors play an equal part in our twin studies. As scientists continue to study those factors maybe they will come to a conclusion as to which factor is greater.

In conclusion, almost everyone in any related field has an opinion as to which is truly more important, nature or nurture. The director of a group called the Minnesota Study of Twins Reared Apart, Thomas Bouchard, believes that 70 percent of a person's personality is genetic and 30 percent is due to environment. The director of the Louisville Twin Study, Adam Matheny, however, says it is 50-50. Although in our opinion is that, both nature and nurture are very important. As we have mentioned before, both of the two are affecting to language development and as well as emotions. A lot of physical development is pre-programmed to accompany with brain development and is brought about through nature. Nurture, such as stimulation, is also necessary for the brain to develop though. Even the cases of identical twins are not a perfect example of nature working its

secret. If some of the ties happen to be coincidence and some happen to be based on doubtful knowledge of their past, the entire idea seems less dependable. For example, the fact that the Easterling twins both named their sons James Allen or James Alan is simply naming the child after themselves, and then it might be Allen/Alan because they were told that their birth father was named Alan. The only way we could know for sure is to know more about the connection of all the things that are the same between them both. Since we don't know any context we can only take it as the doubtful information it is. Based on all my given information, I believe that nurture is more important than nature, at a balance of approximately 70 percent of early childhood development being influenced by a person's environment and 30 percent being influenced by genetics. The two are so tied together that you cannot ever fully divide one idea from another.