

THEME 02

The nature of our personal traits

GENETICS

IDENTITY

NATURE AND NURTURE

Why do some people turn out to be criminals and others saints? Why are some people more intelligent than others? For the longest time, we've been looking for the cause of our specific personal traits. Ever since Darwin, our personal traits are often ascribed to a mixture between nature and nurture. Today however, information that is enclosed in our DNA promises to reveal a much bigger role for nature than we thought. Hopes (e.g. precision medication) about the development of this technique are as high as the fears are deep (e.g. eugenics). Aside from these hopes and fears, what will it mean if it becomes common knowledge that our personal traits are genetically influenced?

Our observations

- Startups that claim to find out all sorts of information about personal traits based on DNA are on the rise. Some are already relatively famous, such as [23andMe](#), which offers information on health and family roots. Others (e.g. [Karma-genes](#), [Goldmen](#)), however, offer information on personality rather than physical traits, promising that this information can lead to a better use of personal strength and therefore a better career or life in general. A more controversial startup, [Genomic Prediction](#), provides genetic testing for IVF in order for parents to select IVF embryos with favorable properties in, for example, health, intelligence or height.
- The possibilities of DNA testing for political purposes are emerging as well. The Trump administration, for example, is planning to [collect DNA samples](#) of all immigrants. The results will be stored in an FBI database so that law enforcement is better equipped to track down criminals. Recently a Florida detective was already [granted](#) permission to access DNA profiles on a commercial DNA site in order to solve one of his cases. The UK, on the other hand, is exploring the possibility of giving [every newborn a DNA test](#) in order to detect health risks early on. The risk of genetic diseases could then be mapped, allowing for predictive, personalized care.
- As we [wrote](#) before, AI will increasingly be applied to discover patterns in genetic data. With the rise of this biotechnology, it will be possible to analyze genetic data on a large scale in order to, for example, identify and develop new medicines.
- There is a lot of skepticism regarding promises of commercial parties that offer DNA testing. Testing embryos for complex traits such as height or IQ, for example, is not very effective yet, according to a recent [study](#). DNA tests revealing our psychological strengths and weaknesses are also in a very early stage and supportive evidence of this possibility is currently still based on long-term twin studies instead of DNA testing with a single person. This makes the current commercial offering of DNA testing for insight into personal traits [unreliable](#). As we [wrote](#) before, however, evidence has been found that supports the plausibility of DNA being key to personal traits that were traditionally linked to nurture (e.g. learning disabilities, kindness). Some researchers such as Professor Plomin even go as far as claiming that any personal (psychological) trait has a significant genetic influence.
- Experiments in search of biological causes to our identity have known very tragic cases. [David Reimer](#), for example, was born male and had a twin brother, but was raised as a girl and subjected to medical interventions. This was done in order to discover whether gender was a social construct enforced by a certain upbringing instead of determined by physical traits. Reimer realized he was male between the ages of 9 and 11 and from then on identified as such until he committed suicide at 38. Another tragic experiment that recently became notorious was captured in the documentary [Three Identical Strangers](#). Three young men who were all adopted meet each other and find out they're identical triplets who were deliberately separated at birth and placed in three different families with different social and financial circumstances. This story also ends tragically, with the suicide of one of the triplets.



Connecting the dots

Throughout history, several experiments have been done in order to discover what causes us to be who we are. The first experiment that was recorded dates back to ancient Egypt. One of the first notorious experiments, however, was performed by Holy Roman Emperor Frederick II in the 13th century. A child was deprived of human contact in order to discover what the natural language of humans is. After WW II, claiming that people were a product of nature, even to some degree, was taboo and for decades, everything was ascribed to environmental influences. Scientists who argued for natural causes of personal traits were often condemned by the public. Professor Buikhuisen, for example, who claimed that criminal behavior can be the result of biological causes, or Professor Swaab, who claimed to have observed some different neurological patterns in homosexuals than in heterosexuals. Both were heavily criticized at the time. However, with the development of mapping the human genome 15 years ago, discussing the idea that genetics are connected to physical traits became acceptable again. Recently, the idea that personality traits might be partly linked to our DNA has been gaining popularity and is starting to get picked up by commercial parties. The idea that a substantial part of our identity originates in biology has not only led to some very tragic experiments; due to WW II it is often associated with the eugenics of Nazi Germany and the Holocaust. This very negative connotation to tracing our identity back to biology, which we cannot control with environmental adjustments or free will, is primarily a result of the horrific policies that were carried out in WO II based on this idea, rather than of the idea itself. Moreover, when we look at a different practice that also links personal traits to something else than environmental causes or free will, namely astrology, we see that this idea is received very differently. Just like personality tests such as the [Myers-Briggs Type Indicator](#) or the [Big Five personality traits](#), astrology makes similar claims that promise to unravel personal strengths (e.g. leadership or kindness) and weaknesses (e.g. lack of discipline, insecurity). The big difference is that astrology, like polygenic scores, links personal traits to something that is beyond our

influence. From an astrological worldview, an individual is prone to certain strengths and weaknesses from birth, which cannot easily be escaped and to some extent define our destiny.

In general, personality tests are nothing new. Companies, for example, often use personality tests to get a grip on how employers fit into a team or company. By knowing these traits, a person becomes better equipped to plan out his life and understand personal dynamics. For example, if you have a strong sense of responsibility, but are less equipped for creative affairs, certain jobs may be more suited than others. Although this information can also be acquired by living and learning, a personality test is often consulted to get a more precise and clearer notion of which direction in life is best to pursue. A big difference with a personality test based on psychology and a personality test linked to one's DNA, is that the former is less binding and offers more possibilities for a person to change or improve oneself than the latter.

The evaluation of personal traits is seldom done in a neutral manner. Depending on cultural worldview, some personal traits are valued more (e.g. intelligence, persistence, creativity) than others (e.g. insecurity, shyness, indecisiveness). Should we become convinced that people are intrinsically good (e.g. have genes for kindness or compassion) or bad (e.g. have genes for aggression or ignorance) might therefore compromise ethical values like equality and freedom. Dangerous ideas like "some people are better than others by nature" might rise once again. In the history of (Western) astrology, however, the evaluation of traits evolved from a simple distinction between good and bad traits to a more elaborate approach. Personal traits were refashioned into characteristics that have advantages and disadvantages. The aggression of Aries, for example, might be undesirable in situations that require patience and observation, but is valuable in situations in which courage or confrontation is needed. In order to make this new perspective on personal traits and our genes constructive, a more rich or inclusive view on traits that are now viewed less wanted might be needed too.

Implications

- Professor Plomin, who is a pioneer in linking genes to psychological traits, predicts a positive outcome of this new perspective on what makes us who we are. He [argues](#) that it will change the way we understand ourselves and "teach us to be more tolerant to others, [because] genetics not free will is the reason why some people are more prone to problems like depression, learning disabilities and obesity." It will become common knowledge that people are far less responsible for their behavior since a big part of it didn't come about by free will, nor by the choices that were made in life.
- A best-case scenario could be that the differences between us given by nature would not only lead to more compassion, but also to better employment of personal traits and, for example, a better understanding of what can make us happy or how to lead a fulfilling life.
- Linking personal traits to a cause beyond our reach makes the differences between people more definite than associating them with free will and choice. People might therefore feel more trapped or stigmatized by a certain depiction of their personality. However, other than the unchangeable constellation given at birth (i.e. astrology), the genetic information we inherit can be changed by manipulating our genes (CRISPR). An industry that provides methods to overcome genetic determination of personal traits might therefore be on the rise in a distant future [as well](#).