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# SHOULD YOU DESIGN THE PERFECT BABY?

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*As our technology rapidly advances, designer babies and other bioethical issues are fast becoming possible. Instead of solely being considered in economic terms, or in terms of accuracy and desirability, ethical questions should also be asked such as 'is this a* good *thing to do?'. This article considers whether moral people would 'design' and genetically engineer their babies and applies the moral theories of virtue ethics, deontology and utilitarianism to help guide our ethical decision-making in relation to this complex issue. Even if we* can *do something, we should pause and consider whether or not we* should.



Imagine it is now possible to genetically engineer human embryos with no negative side effects or unwanted biological consequences. If we perfected the technology available such that anyone who wants to can select the exact genetic makeup of their future offspring, would you agree that this is a great idea? For a certain price, parents could lovingly design the *exact* characteristics they want their children to have.

If you have always wanted a musical, blue-eyed, sweet natured baby girl who will grow up to be 160 cm tall – Hey Presto! That will cost you £100,000, but you get a lifelong guarantee on your purchase. Perhaps you wanted a sporty, charming, black-haired lad who has an IQ of 110. No problem!

Is there anything ethically wrong with making these kinds of choices? Would a virtuous person design their babies?

There is a classical film that plays with this very idea. *Gattaca*, made in 1997, is a science-fiction feature film

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directed by Andrew Niccol set at a time in which most babies are genetically designed by their parents. Set in a future in which eugenics is commonplace, naturally born human beings are rare and increasingly undesirable. In fact, software that can read a person's DNA will label someone as either 'Valid' or 'In-Valid' based on whether or not they are designer babies, with the In-Valids as a second class of citizens who cannot compete with the genetically superior Valids.

In the world of *Gattaca* – based on the letters G, A, T, and C which stand for guanine, adenine, thymine, and cytosine, the four nucleobases of DNA – you can choose the colour of your child's eyes, their likelihood of obesity, their degree of intelligence, their tendency to violence, and many other characteristics. These choices are extremely important, for in the future, any slight defect may forever brand your child as imperfect. Babies are created in test-tubes and, as soon as they are born, a reading of all their biometrics (50% chance of heart disease by age 35; 30% chance of depression, etc.) is printed out and filed in the governmental system. So, it is worth considering which traits you do – and do not – want your children to have, and to ensure they get these.

The film focuses on the dream of one young man, Vincent Freeman (played by Ethan Hawke), who wishes to be an astronaut at the Gattaca Aerospace Corporation. Unfortunately, he lacks the genetic perfection required in the Big-Brother-ish future, because he was not a designer baby. As an In-Valid, he resorts to paying the now bitter and crippled Valid, Jerome Eugene Morrow (played by Jude Law), to be his housemate and prepare illicit samples of bodily material for him so that he can steal his identity and pass himself off as the more superior genetically designed man. The film's byline is, 'there is no gene for the human spirit'.

We might ask whether Vincent's actions are ethical or virtuous. Would a virtuous person behave in this way? Lying, stealing, and cheating the system are obviously

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immoral and so the quick answer may obviously be 'no'. But what if the system itself is unfair, discriminatory, and unjust? This is a tricky question, because we would firstly need to know what else might be done to change the system that determines your place in society at the moment of your birth. If there is nothing that can be done to change the system, to try to make it fair, then should Vincent still do what he can to get ahead and do the job he dreams of?

Some might say that the system is rewarding those who are fitter, healthier, more intelligent and thus there is nothing unfair about it at all. Vincent is weaker than the Valids and should not be going into space because it is a risky mission. If Vincent manages to get his own way and succeeds, would that illustrate the flaws in the system, or simply that Vincent just got lucky by cheating the system?

Perhaps we should be asking whether virtuous people would 'design' and genetically engineer their babies in the first instance? Let us consider a moral theory that may help guide our ethical decision-making in relation to these complex issues.

Virtue ethics is the oldest moral theory we have, dating back to Ancient Greece and the writing of Aristotle (385–323 BC). Aristotle sought to understand moral decision-making as grounded in real-life experience, guided by the idea that we practice certain habits until they become ingrained character traits: virtues or vices. The idea here is that the virtues are good character traits that are guided by rationality and practical habits, helping one to lead a happy (flourishing – *eudaimonia*) life.

Virtues such as honesty, kindness, trustworthiness, and courage are all pro-social habits that help us to get along with others and thus enable us to be moral, social beings. The individual virtues are said to lie in the middle of two extremes – the golden mean between two vices. For instance, courage is the virtue that lies between cowardice, on one side, and rashness, on the other. Instead of considering what action is the correct one, the virtue ethicist asks, 'what would the virtuous person do?'. It is said that the



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virtuous person would behave in the right way at the right time for the right reasons. If someone was drowning, the virtuous person would help in a way that was commensurate with their abilities and appropriate to the context in which they found themselves, and, importantly, they would want to help.

It is imaginable that the virtuous person would want to help create the best possible life for their offspring and therefore may be in favour of genetically designing their babies. However, the virtuous moral agent does not solely consider what is in their own best interests. They also consider what would be good for society. If such technology was accessible, flawless, and available to everyone, then this may be deemed to be good. However, if the technology was only available to the very wealthy and would discriminate against certain people and certain characteristics – for people are not unbiased, and their choices may be sexist, racist, and discriminatory as we have seen from past experiments in eugenics – then this may be deemed unethical. The virtue ethicist considers what are good habits of action that allow people to lead flourishing lives. As such, the issue of designer babies must be considered in a context in terms of how the society in question will make use of it. If it may be used in a fair, inclusive way, to better the lives of everyone, then it could be supported. However, if this is not the case, then the virtue ethicist may object to its widespread use.

We may compare virtue ethics to two other prominent moral theories in order to consider how they might also be applied to this interesting case study. Firstly, let us consider Kantian deontology. The deontologist – classically represented by Immanuel Kant (1724–1804) argues that you should follow the moral law and these moral rules are, on Kant's account, those actions you would universalize. If you take a rule and are happy that everyone would follow it, without any exceptions, then that is the moral thing to do. Deontology is concerned with doing one's duty – which is determined by considering the moral action (regardless of

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its consequences). Acting on one's duty would ensure you never lied, never stole or cheated, and always helped those in need.

On Kant's theory, parents do have a specific duty towards their children. This duty is not framed in terms of the happy (flourishing) life, as Aristotle proposed, but, rather, is about rights and responsibilities. Surely a parent's duty is to create the best possible circumstances for their children to help them be healthy and lead a good life? If so, then making the best use of existing science and technology in order to genetically modify and pre-determine their DNA is akin to using medicine to help your children's health.

However, if there is a high cost to this treatment, say, £100,000, then this is less universal than it first seems. If there are those who are already disadvantaged – the poor – who cannot afford this option, should the rich still be able to purchase such advantages to further elevate the successes of their offspring? Is this any different from purchasing entrance to a top school or paying for a tutor to help with exam preparation?

The deontologist claims you should not make an exception of yourself, and you should always treat yourself and others as ends in themselves, not means to further ends. What does this mean? Well, the idea that someone is valuable in and of themselves – as an *end* – is the same as saying we should love and respect someone for *who they are.* A child is not a consumer product; not a choice that is purchased by parents to be a shiny accessory to their own life. By seeing the child as an expensive product that is selected and purchased in this transactional way, the child is being treated as a means to some other end: fame, fortune, prestige, envy. . . That isn't the way babies should be treated and there is something ethically problematic about this way of thinking. Instead, as children grow up, they should be able to have the freedom to choose for themselves what they want to do and how they wish to live their lives.



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Now, some might counter and argue that, to some extent, our genes *do* determine our future, so why not preselect the best ones? In fact, in the film *Gattaca*, the parents of the world's most famous pianist have basically created his future for him by genetically determining, prebirth, that their son would have six fingers on each hand. Only he can play certain songs that are so complex, so magnificent, that everyone rushes to purchase tickets to his concerts. At the end of each performance, he throws one single, white, six-fingered glove into the audience with a flourish.

This is a wonderful advantage, don't you think? Instead of simply putting your child into musical lessons with the best teachers from an early age, or sending them to a world-leading music school, you can simply choose the genetic materials required that ensure your child will be a wonderful musician! Parents encourage their offspring in all sorts of ways, so how is this any different? Surely it gives the child a head start if they are already genetically predisposed to excel in a chosen field. It practically guarantees their success.

Yet, the idea of nature vs nurture still demonstrates that although our genes predispose us to certain traits, our environment has a significant impact on whether these traits manifest and in what manner. Deliberately selecting genetic features (and discriminating against others) is certainly taking genetic determinism a step further and if the technology was perfected, allowing such specific choices to be made, then those are the choices of the parents, not of the as-of-yet unborn child. Chance and freedom are reduced in a world that is governed by eugenics – particularly if society privileges and prioritizes those who are deemed to be genetically superior.

In the film *Gattaca*, there is a sub-plot which highlights further complications of living in a world in which most babies are genetically crafted in this way. Vincent falls in love with his co-worker Irene Cassini (played by Uma Thurman). Irene is a Valid – meaning that her parents

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selected her genes before she was born. By contrast, as we know, Vincent is a 'love child' – that is, one born of natural means and not genetically chosen to have certain traits and qualities. Thus, as he is labelled In-Valid, he works as a part of the janitor's team, cleaning offices, and is not accepted onto the aeronautical programme. A quote from Irene states, 'They used to say that a child conceived in love is a child of happiness. They don't say that anymore.' There is a very strong social divide between the Valids and the In-Valids that corresponds to the idea of the haves and have nots: those who can afford to pay for the genetic selection of superior DNA sequencing to ensure their offspring have good jobs and successful lives have all the power.

As such, with any unequal system, there are ways around the laws and regulations. In the world of *Gattaca*, there exists an illegal black-market service where you can bring a genetic sample – such as a piece of hair – and buy a readout of the genetic information of whoever you wish to learn more about. What an excellent way of vetting potential partners and checking to see that they are who they say they are! As you can see, in this world, your genetic information is *everything* – it dictates who you are, what you are able to do, and in this way your essential nature = your future.

What might the utilitarian say about this world? Utilitarianism, sometimes called consequentialism, is the third and final moral theory that we will consider. The utilitarian (best represented by Jeremy Bentham (1748–1832) and John Stuart Mill (1806–73)) argues that the right thing to do is to maximize happiness and aim at the greatest good for the greatest number. As such, the right thing to do is determined by the consequences of an action (in this way it is the opposite of deontology, which only considers the act itself). If the consequences are good, the utilitarian says, then you should do it! We can envision an argument in favour of genetic selection on utilitarianism – if you can make your child the best it can possibly be, then why wouldn't you?!



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Of course, the difficult thing about moral theories is that you can use them to argue both sides of any case. The moral theories do not actually tell you what the right thing to do is, exactly, rather, they point out important moral considerations, and you have to weigh these up and apply them to the example in question.

Therefore, we can also think of a utilitarian argument against eugenics due to the overall negative consequences of this practice. A society which sees the gap between the privileged and the unlucky increase, only to create ever increasing amounts of pain and suffering for the most disadvantaged, is not, on balance, good.

Now, this seemingly far-fetched scenario I've just described may make for a great science fiction story, but how much should we actually worry about this being a possibility, let alone a reality in years to come? Well, technology has advanced so quickly that it really is not too far removed from the realm of possibility, so it deserves our consideration. The issue with technological advancements is that often they are considered in economic terms – how much would it cost? Would it be financially viable for investors? Or in terms of accuracy – is this possible? Can it be made to work without mistakes? Or in terms of desirability – who would want to do this? Who might be interested in this research? But the ethical questions are not always at the forefront of people's minds. The moral questions, such as: Is this *right?* Is it *fair?* Is it a *good* thing to do? are vital. Just because we *can* do something, doesn't necessarily mean that we *should*.

Currently, using Assisted Reproductive Technology (ART), would-be parents can select which sex they would like their child to be. In many countries sex selection of embryos is only legal due to medical reasons. There are several hundred genetic diseases that affect the Y chromosome – and thus only manifest in men (while women may be carriers). Thus, families with high percentages of, for example, haemophilia or Duchenne's muscular dystrophy may wish to reduce the chance of their child suffering by

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having a girl. This process is complicated, it is medically costly, and it has a great impact upon the woman's body, requiring her to take hormone injections and have surgical procedures in order to get pregnant in this way. In some other countries where IVF (in vitro fertilization) and the use of ART is less regulated, potential parents may also select the sex of their baby for non-medical reasons, such as gender preference.

It may seem harmless to make this choice and it may seem like 'no big deal' to prefer having a baby boy over a baby girl, and to choose which fertilized embryos to insert on the basis of this choice. Yet, in fact, there are significant ethical questions surrounding this choice and this action. For instance, there are cultures in which boys are much preferred over girls, which has even led to infanticide – the killing of baby girls when a son was desired. There is also the question of what should be done with fertilized embryos that are not of the desired sex. If life is deemed to commence at conception, then these are lives – or at the very least potential human lives – that have been created and yet are unwanted.

Such choices are simply not morally neutral: they are influenced by biases of all kinds. There are ethical, legal and social implications surrounding issues to do with human genome information and research, DNA selection, sex selection, eugenics, and the possibilities of choosing other biometric characteristics or even cloning.

In our society today, we already have the technology available that allows our genetic profile to be examined and for some characteristics to be selected or discriminated against – for instance, when seeking to avoid passing along genetic diseases. Yet we should consider the ethical implications of further extending the use of such technology and the effects this may have on the nature of being human and on human societies. Is it possible we may end up living in a *Gattaca*-like world? We should pause and think about who might want to use such information or services, as well as what rights we have to



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our own genetic code (our DNA) as well as our right to privacy. Consider the interest that could be taken by employers, insurance companies and others to identify people with a genetic predisposition for a particular illness or condition. This information could be used to discriminate against individuals as much as it could be used to assist and help support them.

In relation to our question about designer babies, the virtuous person may ask: what does a good society look like? Does it allow for people to design the babies they want to their exacting specifications, for a fee? Should there be any restrictions on which characteristics or traits may or may not be selected (or vetoed)?

Now, I can leave answering that question up to you. But what is immediately obvious is that the question itself invites you to consider various scenarios and possible answers to the moral dilemma under debate. There isn't one fixed 'correct' reply. And this is true to life: these ethical case studies are tricky and there are many factors that ought to be considered. But that's exactly the point! By thinking about such factors, and having meaningful dialogues about them, we can start to think about how to avoid the worse-case scenarios. By considering the ethically relevant features of an issue, we are making room for moral values and important considerations that are not simply economic, practical, religious, or scientific.

If humans survive the next few centuries, it is possible that the concept of being human 10,000 years from now will be very different. Capable of living for centuries, these hybrid humans are likely to be part machine as tiny nanobots become fused into the human genome. *The Bionic Woman* and *The Terminator* are no longer science fiction fantasies but fast becoming reality – particularly considering that replacing human joints with mechanical ones is already routine. We can create babies in test-tubes and make organs in labs. . . Just imagine what will soon be possible. Hopefully, as new technology opens up new possibilities for human beings, we remember to pause

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frequently and ask, 'is this a *good* idea?', 'how might we use this *ethically*?', and 'what would a virtuous person do in this situation?'.

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