

Educational or genetic blueprints, whats the difference?

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Introduction

Following the use of genetic technology to prevent and cure different pathological conditions, it will relatively soon be possible to enhance athletic performances through genetic engineering. In theory, genetic interventions could be effected either on an already existing person (somatic genetic modifications) or at an embryo level (germ-line genetic modifications), in order to ameliorate certain physiological characteristics that enhance athletic performance (for instance, the capacity for oxygen uptake and the propensity for muscular growth); this use of genetic technology in sport medicine is nowadays popularly called gene doping. In the case of germ-line modifications, the transformed genetic structure will be inherited by the modified persons offspring.

Most people, including those who believe gene technology could be made relatively safe from a medical point of view in the future, see the eventual irruption of this new technique as a fundamental threat to sports and society. Regarding sports, these people believe gene doping subverts the ideal of fair competition, that not only is central to sports, but even has educational value for the new generations.

In this article, I will discuss an objection to gene doping based on the ideal of personal autonomy. Gene technology provides a new, dramatic dimension to the educational paradox - as formulated by Kant in his question How do I cultivate freedom through coercion? Focusing mainly on germ-line genetic modifications, I will question whether the genetic design of a (still unborn) child is a fundamental threat to, or even a denial of, that child's personal autonomy. And I will also ask whether genetic pre-programming essentially differs

from the stimulation and specialisation considered to be legitimate aims of good education and upbringing.

(Of course, somatic genetic modification may also be dangerous for an already existing individual. Is this particularly disturbing for somatic gene modifications? I do not think so. The desirability of strengthening personal autonomy - itself a warrant against intrusive State intervention on individuals' private sphere - speaks for allowing every individual to decide by herself which risks she is willing to take in order to achieve professional success and recognition, as long as this does not substantially affect others. However, I will not extend on this, as I already discussed this subject in a previous work. For a more thorough discussion on this, see my article "What's wrong with doping?", in Tännsjö & Tamburrini 2000a)

Throughout my discussion, I will distinguish two different ways in which a persons autonomy might be violated, and will then argue that genetic technology does not violate any of them. Finally, I will also try to substantiate the claim that the ban on gene doping runs counter to the notions of personal integrity and legal security, and should therefore be abolished.

Gene technology reduces individuals range of action

Let me first dispose of one objection to the application of genetic technology, either in sports or in education in general, that will not hit the mark.

The objection runs as follows: as the new technology is dangerous, both on a somatic or an embryonic level, it threatens to seriously impair individuals autonomy. According to a notion of autonomy, individuals are autonomous when they are able to entertain different courses of actions without impediments. Thus, a person could be more or less autonomous, depending on the number and degree of activities she is able to undertake. The more reduced my range of action is, the less autonomous I am. Suffering from a serious handicap, as the ones a gene-modified person may be affected by if the intervention goes wrong, reduces the number of options open to that person, thereby diminishing her autonomy.

Although laudable in its intention, the present objection does not hold all the way. At present, not even sceptics doubt that new genetic technologies have the potential of preventing and curing serious diseases. This insight explains the acceptance genetic technology enjoys, both at a social and at a legal level. That means that, unlike traditional doping techniques, genetic technology will be widely used (as a matter of fact, it is already being used) in general medicine. Before the new techniques are introduced in other areas of society, for instance sports medicine and education, they will be first developed and tested in the health care system. Even if genetic modification today still involve some risks, it will most probably become as harmless as a medical technique can be in the future, following its medical applications. At least, not more harmful than current elite training techniques. Genetically transformed individuals will then not be exposed to any morally relevant risks. No relevant impairment of personal autonomy occurs therefore with this new form of doping, in the sense discussed above. And as many people today oppose traditional doping mainly on grounds

that is dangerous for athletes, opponents to gene doping will then be deprived of their main argument for the ban.

Gene technology deprives individuals of control over their lives

According to a second notion of autonomy, a person is autonomous in relation to the degree to which she can decide over her life projects, goals and plans. Thus, a person can be said to be (more or less) autonomous, depending on the level of control she has on important matters in her life. Therefore, it is said, genetic interventions at the embryonic level violates individuals autonomy, as modified persons are designed to fit certain activities before they are even born. Or so could at least objectors to gene technology argue for their cause.

What could be said on this argument? There is no doubt that the new techniques carry with them a threat to personal autonomy, in the sense of introducing (still) a risky, manipulative factor in the pedagogical process. But, in that regard, gene technologies do not essentially differ from traditional education. Also a bad educator may turn out to reduce the educands control over her life options. A mere threat to personal autonomy cannot therefore justify a ban on genetic modification. Widely stated, any decision taken by parents or educators constitutes a possible threat to autonomy.

Rather, the question is whether gene technology implies a fundamental denial of individual autonomy. What does such a denial amount to?

Roughly, this could mean that there are no other ways of life the educand could freely choose among, besides the one imposed by the pedagogic programme. A blueprint is thus executed without leaving any alternatives open for the child and, often, even for the parents. The absence of a critical attitude regarding the pre-existing blueprint hampers any educational adaptation to the specific character and wishes of the child (as is often the case when children are made to compete in elite sport contexts).

More precisely, the present objection states that the educand is denied an autonomous life project, in a fundamental way, when she is presented with given, external life goals, projects, etc., which are not her own and in which formulation she has had no saying. Genetic pre-programming an individual to excel in a particular activity constitutes, objectors would say, an example of targeted pedagogy and is therefore a powerful denial of that persons autonomy. We should abstain from using that technique, and leave instead the decision on whether or not to undertake a particular path in life to the individual herself.

To begin with, as it is formulated, this objection is too comprehensive. It affects not only gene technology, but also the sort of specialisation in a certain activity - and the predisposition for it so generated - that characterises traditional education. Both at school and at home, we inculcate certain skills and attitudes in our children that, in most cases, will influence their professional choices in the future. Why should this kind of pre-programming be less objectionable than genetic engineering?

For many people, the answer is obvious. A good education helps the child to develop a variety of skills, and instils in her the self-confidence required to make a free decision. The good pedagogue does not pre-programme, she does not even predispose the child for a

particular career. Rather, she is attentive to the preferences and skills of the child, and supportive of her development. At least ideally conceived, education - unlike manipulation of all sorts - concentrates on a multiple development of the educand. And it is the educand herself who is left with the final decision regarding which sides of her personal development to reassert by choosing a profession. To put it shortly: traditional education widens the educands horizons, while genetic technology makes it narrower.

In my view, genetic technology does not run counter to the pedagogic ideal just sketched. In fact, the only difference from traditional education is that a genetically modified child would know from the very beginning that, if she so chooses, she can be really good at, say, field and track disciplines or mathematics. But genetic modification does not compel her to become a sportswoman or a mathematician, any more than the good pedagogue compels a child to become a lawyer when she tries to make the child interested in legal issues. Consequently, there is no reason to affirm that the educands range of life plans and projects will become smaller as a consequence of being submitted to genetic technology in the process of education. On the contrary: if knowledge means power to influence ones own life, genetically transformed educands will be more empowered than traditional students.

But, is it not disturbing to know in advance what one is good at? Will not such a piece of information cause anxiety in the child? And is there not a risk that knowing that one could become excellent at a particular sport or scholarly discipline could influence ones decision too much? A similar discussion is carried out in the context of genetic counselling regarding whether individuals ought to be given information on their susceptibility to generate specific kinds of disease. It is affirmed that the psychological trauma invoked by such knowledge can be more detrimental than the disease itself and even provoke the onset of the disease in question. However, genetic counselling should be distinguished from pedagogical issues. Unlike being informed on what diseases one might develop in the future, knowing in advance what one is good at cannot reasonably be expected to have the same traumatic effect, even less a similar triggering effect on any disease. In that regard, genetic technology is not a problem, at least no more than vocational testing is. Vocational tests also tell the child in advance what she could do well at. Should we then forbid these tests too? Many adolescents might even feel relieved to know that, if they so wish, there is a professional area in which they can excel. Genetic technology, as a more sophisticated form of vocational testing, can give them that, at least as a non-intended side-effect.

Gene doping and fairness in competition

However, violating personal autonomy is not the only charge advanced by opponents to the new genetic technology. Fairness in competition is also a powerful argument for them. If we let a gene doped athlete win a competition, the competition is being decided by other factors than the physical and character excellence of the competitors. Or so the objection goes.

This is, in my view, an amazing objection. In the 1960s, the Finnish cross country skier Eero Mäntyranta was suspected of blood doping because his red blood count was 20% higher than his competitors. Thirty years later, 200 members of his whole family were tested

by scientists, and they found that fifty of them, including Mäntyranta himself, were born with a rare genetic mutation that causes an increase in oxygen-rich red blood cells. This mutation gave Mäntyranta a competitive advantage in front of his rivals. Now, why would have been wrong, or contrary to the ideal of fairness in competition, to give Mäntyrantas competitors the possibility of equalising competitive conditions by resorting to old-fashioned blood doping or, if it had been available at that time, to genetically caused EPO-doping?

Many people think such training tactics are obviously unacceptable, and tend to cling to the idea that only natural talent should decide the outcome of a sport competition.

I found that idea difficult to substantiate. Why should congenital, genetically determined traits lead to victory and praise, but not acquired ones? Such a notion of justice is not only flawed, it is also becoming obsolete, due to the fast medical development we are experiencing today. There is no reason to let the genetic lottery decide a sport competition, when the winning odds of all competitors might be levelled out by intentional and goal-oriented efforts to achieve a higher sport performance level.

The ban on gene doping and personal integrity

There is another problematic aspect of the ban on genetic enhancements. In order to control that athletes abide by the prohibition, it will be necessary to test them for genetic traits. This constitutes a double violation of athletes personal integrity. To begin with, the tests might reveal information they dont want to have, for instance on their propensity to develop certain serious diseases. Secondly, this information might come to be misused by third parties, for instance insurance companies and employers, against the athletes.

Here it could be retorted that, if you want to be a part of the game, then you are required to abide by the rules imposed by sport organisations.

I find this argument extremely bureaucratic and short-sighted. Let us recall that the IOC itself abolished sex testing before the Olympic Games at Sydney 2000 with the argument that such testing violated women athletes integrity. It is true that, by the time when it was abolished, sex testing has become greatly discredited among women athletes and the public opinion. But I think the same could be said on genetic testing. Most of us feel, and rightly so, that revealing our genetic constitution is a threat to our integrity. Besides, even if the World Antidoping Agency (Wada), the IOC and other international sport federations could manage to get acceptance for the genetic testing from athletes, we should not forget that, by testing the athletes, the genetic constitution of their relatives will also be revealed. So, their families too will be given information on their genetic constitution they might not wish to have. Further, they might also be submitted to the risk of being discriminated by employers or insurance companies.

The ban on gene doping and legal security

Even if Wada, the IOC and other sport federations would decide to ignore the objection above, there still is another problematic aspect of the ban that touches upon individuals legal security. Let me illustrate what I have in mind with the help of an example. Suppose I decide to genetically manipulate my (still unborn) child in order to provide her with excellent physiological qualities that will give her considerable advantages in the exercise of a particular sport activity. (That could be, for example, a higher concentration of red blood cells than normal). When the time comes for her to start competing, she is nonetheless denied the right to participate in sport competitions because of her irregular blood count (or, if first allowed, she will then be banned from further competition on grounds of being doped). Is it reasonable to punish her for something she didn't do? And in what sense does her blood count differ from Mäntyrantas, that could justify banning her from competition but not him? If one tries to resort to the dubious distinction between natural and unnatural qualities, then one could at best ban my daughter from competition, but not her off-spring. If one still wants to proscribe this kind of genetic enhancements, then it will be necessary to proscribe a whole family, included the new generations. Otherwise, if my daughters off-spring would be allowed to participate on grounds that they are not responsible for their physiological characteristics, the ban on genetic enhancements will become tooth-less.

Conclusions

Let me now sum up my conclusions.

1. Regarding the notion of autonomy that underlines reducing the range of actions open to an agent, it must be said that developments in genetic technique will most probably lead to relatively harmless genetic modifications that will be no more risky than highly specialised elite training techniques at present. No violation of personal autonomy occurs, in the sense discussed here.
2. (2) Concerning the charge that genetic technology deprives the educand of control over her life by inculcating her external reasons for action, we have admitted that genetic technology, and knowledge about the genetically designed educational programme, might no doubt predispose the educand to choose a particular professional career. But predisposition is not the same as determination. Besides, knowing in advance what I could be good at thanks to my genetic predisposition might neutralise much of the worry young people feel during adolescence, caused by their not knowing what they are fit for in professional life.

3. Finally, regarding the ban put by Wada and the ruling sport organisations on genetic doping, I have argued that the prohibition is not only unreasonable, but even impossible to implement while paying due respect to current ideals of personal integrity and legal security.

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