

Rethinking Human Enhancement as Collective Welfarism

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STANDFIRST - Human enhancement technologies are opening tremendous opportunities but also challenges to the core of what it means to be human. We argue that the goal of human enhancement should be to enhance quality of life and well-being not only of individuals but also of the communities they inhabit.

Human Enhancement technologies (HETs) aim to improve human physical, psychological or intellectual capabilities. They rely on a range of emerging technologies such as genetic modification or body implants. They could in principle extend capacity beyond the typical range of human experience, posing new ethical challenges at both the individual and collective levels.

Most HETs are initially developed in order to restore or ensure normal physical or cognitive function, such as walking or remembering, as exemplified respectively by knee implants and cholinesterase inhibitors in Alzheimer's disease. For example, embryonic or genome editing tools such as CRISPR-Cas9 may prevent the development of health-threatening conditions later in life¹. The ethical issues raised by HETs for medical applications have typically been governed by key principles articulated within the Helsinki declaration. However, preventative and restorative medical use is, by definition, not the sole end point of HETs – many could extend capacity beyond the typical range of human capability and life span. An example is the alleged attempt at germline gene editing of twin girls announced at a scientific meeting in November 2018 by He Jiankui from the Southern University of Science and Technology in Shenzhen, China. This procedure was intended to confer resistance to HIV infection, a disease these girls may never be exposed to, raising deep ethical concerns. Genome editing techniques could further enable intentional modifications of other aspects of humanhood, including physical, cognitive and/or affective traits. For example, China, a leader in gene editing research, also has a vigorous program investigating the genetic contribution to general and exceptional cognitive ability². One

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day, drugs or implanted devices may even be intentionally used to modify our sense of what is morally acceptable, so called moral bioenhancement.

Experimental human manipulations aimed at extending capacities are not entirely new with arguably the most successful HETs in human history being non-biological such as education or the printing press. Yet, for the first time in human history, emerging HETs open the door to manipulations we did not think within our reach, from tinkering with our own evolution to the sense of free will. While targeted human manipulations remain the exception, their possibility raises unprecedented ethical questions regarding the future of humanity and of human societies³.

Collective welfarism

Our group was convened by the World Economic Forum as a Global Futures Council (<https://www.weforum.org/communities/the-future-of-human-enhancement>) to consider this issue. We adopted the position that the goal of HETs should be to enhance quality of life and well-being, not just for individuals but also for the communities they participate in, applying principles of equity and social cohesion. This view shares many common principles with the “welfarist” approach developed by Savulescu and colleagues that the proper focus of HET is increasing well-being, taking into account the individual’s set of social and natural circumstances⁴. Here we propose to expand the welfarist approach to acknowledge the possible tension between personal and collective outcomes. Indeed, in some circumstances, the ability to enhance human function may be advantageous to the individual, yet detrimental to the community. This is exemplified by the current debates around enhancement drugs use in competitive sports or by students in university examinations.

If we are to accept as guiding principle that HETs should remain true to the quality of life and well-being of both individuals and their communities, we then need to define quality of life and well-being. Economic indices of well-being are often considered; yet, they fail to acknowledge the importance of more subjective factors in how humans perceive their quality of life⁵. We adopt here a psychological perspective on well-being. According to self-determination theory, well-being will be experienced when the three basic, universal psychological needs of autonomy, competence, and relatedness are fulfilled⁶. We consider how HETs may affect the fulfillment of these three needs both at the individual and the collective level. In doing so, our hope is to provide a common thread to technology developers, entrepreneurs, policy makers and society, to think through HETs impact.

Autonomy

The psychological construct of autonomy arises from forming and acting on one’s own conception of a good life. This does not mean being independent of others, but rather that one is free to act according to one’s own values. It has long been recognized as central to human dignity in the field of ethics. Many HETs are initially driven by the goal of augmenting individual autonomy. Deep Brain Stimulation, a crude form of brain-computer interface, was initially developed to reduce motor rigidity in Parkinson’s patient. Yet this technique is now considered in psychiatric disorders like anorexia nervosa⁷. Should we perceive the resulting healthy eating of these patients as genuinely autonomous and authentic? Similarly, does mood enhancement through the use of antidepressants benefit the individual or rather threatens their

authenticity and self⁸? If a HET alters the self, doesn't it undermine the very basis of autonomy? How do we ensure people make autonomous decisions about such self-changing technologies?

Importantly, HETs may affect not only individual autonomy but also that of communities. For example, if individuals could be genetically engineered to work harder, it would have implications at the individual and community level. At the individual level, such modifications may threaten the right to an open future. If the change caused an involuntary compulsion to work harder, it would undermine freedom. If it gave an individual the capacity to choose to work harder, it would, however, promote freedom and autonomy. Yet, at the collective level, this would significantly advantage communities which use the modification, undermining the autonomy of other communities to refuse to use it as they may become less productive. An ethical framework that explicitly prioritizes both individual and community well-being would protect from such "implicit coercion". Limiting the number of daily work hours to eight hours as in western societies is an example of such a protection.

The importance of thinking through how an emerging HET may affect collective autonomy is also illustrated through historical and contemporary cases. The push for oralism by Alexander Graham Bell, the inventor of the telephone, led to social measures, such as how to school deaf children, that challenged the identity and self-determination of the Deaf culture. On a more positive note, the case of Paralympics illustrates how HETs can empower anew individuals and communities previously left behind. As we look into the future, it is best to strive for technologies that augment both individual and collective autonomy or at least respect the delicate balance between autonomy at the individual and community level.

Competence

The psychological construct of competence refers here to both objective and self-perceived capacity. Many emerging HETs aim at augmenting human competence. Soon, young adults may need to receive implants improving their vision if they are to enter pilot schools, or may feel obliged to take new drugs to boost their leadership skills at work. As documented by a recent US survey, there is now wide acceptance of many such forms of HETs, with physical enhancement being embraced more readily than cognitive forms. Even in this latter domain, a surprisingly large portion of the US population, more than 1/3, says it is appropriate to use implantable devices or drugs to enhance cognitive abilities beyond typical human capacities⁹.

Improving competence may not be ethically positive or even neutral. If humans could be endowed with eagle vision or greater cognitive capacities, these capabilities would be valuable to many, including war fighters. Yet, does that mean we should force those wanting to join the army to undergo human enhancement? What if the cost of the enhancement is so high, it can only be given to the most promising troops? Would the HETs preserve and ossify the position of the lucky superiors – or would it allow others finally to compete? What happens when these fighters leave the armed forces; do we strip them down of their capacities? If we were to create a new technology that augments self-perceived capacities in the absence of any behavioral improvement, would that be progress? Should we ensure alignment between perceived and realized competence?

Collective competence is rarely considered in these debates; yet enhancement of individual competence is at risk of creating even greater disparities between the haves and the have-nots as exemplified above. Furthermore, different constraints may apply to individual and to collective competence. For example, the collective intelligence of a group is not well captured by averaging the intelligence, or G factor, of its individuals. Rather collective intelligence, or the ability of a group to solve complex tasks in a real-world setting, appears captured, at least in part, by factors such as the number of women in the group, high social perceptiveness among its members, large amounts of evenly distributed communication, and importantly moderate diversity in individual intelligence¹⁰. Thus, collective intelligence may be best enhanced by reducing disparities in individual intelligence rather than enhancing a few individuals' intelligence. As we strive for quality of life and well-being, we should aim for HETs and their application so as to enhance both individual or collective intelligence. In sum, while augmenting competence is typically seen as highly valuable, it may be important early in technological development to consider not only how that new competence impacts the individual, but also how it may be distributed across individuals.

Relatedness

The psychological construct of relatedness recognizes that humans are social animals who thrive on feeling connected and cared for. It is therefore important to consider HETs' impact on social skills and the richness of social relationships. It is striking that many fewer HETs are concerned with enhancing social skills than other capabilities. Yet, the appetite for psychoactive substances, such as ecstasy and alcohol, which affect connections and social relationships, speaks to the drive to enhance social interactions. Recently, targeted brain stimulations have successfully altered the pattern of social dominance in rodents¹¹. Manipulating social behavior through brain stimulation may thus be within reach in animal models, even if such application in human remains uncharted. HETs to fight loneliness and its devastating impact on the well-being of the individual or their communities might be welcome. However, experience of loneliness may also be a signal to the self that basic human needs are not being met, prompting the individual to seek social connections. If those deep prompts are not present, how will that affect our communities and our drive toward social cohesion, shared purpose, civic and other forms of communal goals?

Empathy has recently received much interest as a valuable social skill to enhance. Yet, individuals with high empathic concerns for their in-group appear more likely to harm out-groups, calling for a careful consideration of the wider collective value of such enhancements¹². Whether it is right to increase in-group concern by increasing individual empathy at cost of concern for out-groups is a difficult ethical issue. While inclusive feelings for others and greater acceptance of diversity appear commendable targets when considering relatedness, the path to such behavioral outcomes remains largely underspecified.

Future Views

In conclusion, as we consider the tension between individual and collective well-being, a possible way of adjudicating may be via a principle of liberty, such as that articulated by John Stuart Mill¹³. Individuals should be free to promote their own autonomy, competence or relatedness, unless the direct harm to other individuals or to the collective well-being is significant. For example, societies typically condemn fanaticism, whether religious or political, as it harms collective well-being. A stronger ethical approach, though, would be to abide by the

principle, termed ‘collective easy rescue’¹⁴, whereby small individual losses are justified in the name of collective well-being. Mass vaccination is a well-documented example of collective easy rescue. Charitable donations, while imposing a material cost on the donor, nevertheless enhance individual and collective well-being. Importantly they appear to do so through enhancing autonomy, competence and relatedness¹⁵.

If we are to uphold that HETs should focus on well-being, it appears important for technology developers, governments and all stake holders to consider how HET impact in the basic psychological needs of autonomy, competence and relatedness. Furthermore, if we are to consider well-being of not only individuals but also the collectivities they inhabit, the possible conflict between these two levels of impact need to be thought through carefully as new HETs emerge. The role of government, here, is likely to remain key. The conflict between the individual and collective, and collective responsibility in general, is typically best addressed if not by coercive laws, then at least by structuring appropriate guiding frameworks for analysis and governance, along incentives and disincentives.

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