Scientific Contribution

Ethical Implications of Moral Enhancement

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Abstract: Enhancement is the improvement of human performance by means of biomedical intervention. Physical, cognitive and emotional enhancements have been well-discussed in the literature of bioethics since there are already drugs or other technological means for that purpose and quite a few individuals use them. On the other hand, the debate on moral enhancement has just begun. Thomas Douglas, Ingmar Persson and Julian Savulescu at the Oxford Uehiro Centre for Practical Ethics have made the case for moral enhancement. This article critically reflects on the arguments of Douglas, Persson and Savulescu from the viewpoints of "perils," "freedom to fall," "double-edged sword," "moral worth" and "ratomorphism," and argues that the definition, possibility and feasibility of moral enhancement are open questions; the "dual use issue" compels us to deal with the concerns proactively; and the "bootstrapping problem" lies at the root of moral enhancement. Ethical implications of moral enhancement are the issues of the "ethics of the neuroscience of ethics." We need to trace these issues back to the basis of the reflexivity or recursiveness of ethics and neuroscience. This is why we have to take the implications of moral enhancement seriously now, which will be one of the most difficult themes of neuroethics in the 21st

century.

Keywords: neuroethics, neuroscience of ethics, reflexivity of ethics and neuroscience, enhancement, technology assessment studies (TAS)

Introduction

In ordinary language, the word "enhancement" means "to elevate, improve the quality or extent of something." Therefore, "treatment" or "therapy" which repairs an ill, abnormal condition of somebody back to a healthy, normal condition is also included in the concept of "enhancement." However, the technical term "enhancement" in bioethics is usually used in the sense of improving the function of some healthy individual "beyond therapy." In other words, it is a "non-therapeutic intervention" or an "extra-therapeutic intervention." Moreover, it is not the improvement of performance by traditional means such as training or education, but the improvement through "direct technological interventions" such as drugs, surgical operations, genetic manipulations, etc. Thus, it is also called "bio-enhancement" (enhancement by biomedical means) or "techno-enhancement" (enhancement by technological means).

From the viewpoint of *means*, enhancement can be classified into "surgical enhancement," "pharmacological enhancement," "genetic enhancement," "cybernetic enhancement" and so on. One example of surgical enhancement is cosmetic surgery. A well-known example of pharmacological enhancement is doping in sports. Genetic enhancement includes "inheritable enhancement" (germ-line cell intervention) and

"non-inheritable enhancement" (somatic cell intervention). The latter is sometimes called "gene doping." The former was a hot issue in the 1990s and around the turn of the 21st century when the Human Genome Project made great progress, and was often discussed as the issue of "designer babies" or "perfect babies." The theoretical possibilities of cybernetic enhancement are improvements of human performance by means of the implantation of devices or the integration of the human body with machines. Prostheses such as artificial limbs and cochlear implants and other brain-machine-interfaces, which are now used for therapeutic purposes, can also be used for enhancement purposes in the future.

From the viewpoint of *targets*, enhancement can be classified into physical and mental enhancement; the latter can further be divided into "cognitive enhancement," "emotional enhancement" and "moral enhancement." One example of cognitive or intellectual enhancement is the off-label use of methylphenidate (trade names: Ritalin, Concerta, etc.), which is prescribed for pupils and students suffering from ADHD (attention-deficit/hyperactivity disorder) in the US. Some believe that healthy students also profit by the use of Ritalin before examinations, thanks to the "improved attention." A well-known example of emotional enhancement is the off-label use of the antidepressant fluoxetine (Prozac etc.). If it is used by people who cannot be properly said to be pathologically depressed, i.e. if it is used by people who have minor depression in order to improve their mood, then it becomes a "mood brightener." It is also called a "lifestyle drug."

1. Moral Enhancement

As stated in the introduction concerning cognitive and emotional enhancement, we already have examples in the form of drugs, and there are quite a few individuals who use drugs for enhancement purposes. Therefore, the issues of cognitive and emotional enhancement have often been discussed in the literature of bioethics. But as far as moral enhancement is concerned, it has rarely been discussed since it is no more than a theoretical possibility. Recently, however, researchers at the Oxford Uehiro Centre for Practical Ethics have made the case for moral enhancement and generated a bitter controversy. I trace the controversy among bioethical scholars, in order to bring the ethical implications of moral enhancement to light.

1.1. Thomas Douglas

Thomas Douglas, Research Associate at the Oxford Uehiro Centre for Practical Ethics, advocates moral enhancement by trying to refute the so-called bioconservative thesis: "Even if it were technically possible and legally permissible for people to engage in biomedical enhancement, it would not be *morally permissible* for them to do so."[1] By "people" he means the people in the "medium term future—say, the next one hundred years."

One argument against enhancement which is often brought forth by opponents is that if someone enhances herself, it brings about competitive disadvantages to others. Douglas claims that this argument doesn't work in the case of moral enhancement; physical, cognitive and emotional

enhancements might bring about competitive advantages to the enhanced and disadvantages to others, but moral enhancement is intrinsically good though it might not bring about any competitive advantage to the enhanced.

Douglas sets out his formula for moral enhancement: "A person morally enhances herself if she alters herself in a way that may reasonably be expected to result in her having morally better future motives, taken in sum, than she would otherwise have had."[2] The moral enhancement here includes not only enhancement by biomedical means (i.e. bio-enhancement or techno-enhancement), but also enhancement by traditional means, such as training and education. Moreover, he argues that moral enhancement in this sense is likely to bring about advantages to others too, and the criticism brought forth concerning other types of enhancement (such as physical, cognitive and emotional enhancement) does not apply to moral enhancement. Therefore, "when performed under certain conditions, there would be no good objection to biomedical moral enhancement."[3]

According to Douglas, there are five such conditions.

> "**Assumption 1.** Through undergoing some biomedical intervention (for example, taking a pill) at time *T*, an agent Smith can bring it about that he will expectably have better post-*T* motives than he would otherwise have had."
>
> "**Assumption 2.** If Smith does not undergo the intervention, he will expectably have at least some bad (rather than merely suboptimally good) motives."
>
> "**Assumption 3.** The biomedical intervention will work by

attenuating some emotion(s) of Smith's."

"**Assumption 4.** The *only* effects of Smith's intervention will be (a) to alter Smith's psychology in those (and only those) ways necessary to bring it about that he expectably has better post-*T* motives, and (b) consequences of these psychological changes."

"**Assumption 5.** Smith can, at *T*, freely choose whether or not to morally enhance himself, and if he chooses to do so, he will make this choice for the best possible reasons (whatever they might be)."[4]

Douglas argues that it would be morally permissible for Smith to morally enhance himself under these conditions. We must take note of the fact that Douglas acknowledges moral enhancement only if it is freely chosen by the enhancer himself (Assumption 5).

1.2. Ingmar Persson and Julian Savulescu

Ingmar Persson, Distinguished Research Fellow at the Oxford Uehiro Centre for Practical Ethics, and Julian Savulescu, Director of the Centre, emphasize the perils of scientific and technological advancement.[5] When they talk about perils, they have the misuse/abuse of technology by small groups (like terrorists) in mind. Thus, they conclude that "the progress of science is in one aspect for the worse by making likelier the misuse of ever more effective weapons of mass destruction, and this badness is increased if scientific progress is speeded up by cognitive enhancement, until effective means of moral enhancement are found and applied."[6] Therefore, "If safe moral enhancements are ever developed, there are strong reasons to believe that

their use should be obligatory, like education and fluoride in the water, since those who should take them are least likely to be inclined to use them. That is, safe, effective moral enhancement would be compulsory."[7]

2. Critical Reflections on Moral Enhancement

2.1. "Perils"

Elizabeth Fenton advocates scientific progress and cognitive enhancement, and criticizes Persson and Savulescu in that they exaggerate the risks and undervalue the benefits of technology.[8] They respond to Fenton in their article.[9] I will not delve into their articles. Needless to say, technology has both bright and dark sides.

After the nuclear catastrophe in Fukushima, quite a few people began to doubt the reliability of technology to control nuclear reactions and think that it is high time for us to discontinue nuclear power generation. However, the number of people who believe that we should abandon all technology (including medical technology) and go back to a primitive lifestyle is not so large. Fenton underscores the bright side of technology. On the other hand, research on pathogens such as infectious bacteria and viruses, which is conducted to contribute to the treatment and prevention of various infectious diseases, can also bring about disasters when it is misused, say by terrorists. Persson and Savulescu emphasize the dark side of technology such as the danger of mass destruction by small groups.

When we are confronted with the problem whether we should start the development of a particular technology, we usually weigh the merits

and demerits (or risks) of the technology in question. If the technology is totally new, the evaluation of merits and demerits is not easy. Not only the direct merits and demerits of the technology, but also the indirect influences on the natural environment are assessed nowadays. Technology assessment studies (TAS) will surely gain much importance. Further, the impact of technology on human-social environments should also be taken into consideration. It is an urgent task to develop a methodological framework to study, in an interdisciplinary manner, not only the obvious, direct and short-term impacts, but also the subtle, indirect and long-term externalities of a particular technology.

2.2. "Freedom to Fall"

John Harris criticizes moral enhancement in order to protect human freedom and cites a passage from Book III of John Milton's *Paradise Lost*. There God says, "I made him [Adam] just and right, sufficient to have stood, though free to fall."[10] If Adam fell by the temptation of Satan, it was Adam himself who was to blame, because he had the freedom to fall *and* to stand. Harris argues that moral enhancement will not leave us the freedom to fall and to stand; the freedom only to stand is not real freedom.

The following criticism of moral enhancement occurs to us immediately: "An act can be called moral if the agent acts freely, i.e. autonomically; if the act is carried out because of the technological intervention, it cannot be properly called moral since it is heteronomical. So-called moral enhancement is in reality moral impoverishment." Harris criticizes Persson and Savulescu along these lines.

Harris' "freedom to fall" argument, which cites Milton, is certainly a

profound argument against moral enhancement, but Harris doesn't go into the concrete details about freedom. Theodicean and metaphysical debates on the nature of freedom make it difficult to discuss whether some biomedical intervention really interferes with moral judgment and human freedom.

Douglas' third assumption is as follows: "The biological intervention will work by attenuating some emotion(s) of Smith's." The reason why he includes this assumption seems to be that he wants to avoid the criticism that moral enhancement intervention interferes with human freedom. If we think of a "strong intervention" which directly intervenes in the decision-making process of moral judgment and makes the human-being a marionette which cannot but do good things, then Harris' criticism is more compelling. Douglas might have thought that, if the intervention is limited to a "weak intervention" which does not directly intervene in the decision-making process and only attenuates some emotion such as anger that interferes with calm judgment, then the weak intervention would not compromise, but facilitate a free moral judgment.

Harris' argument points out an important element concerning moral enhancement and freedom. However, the question whether moral enhancement interferes with human freedom must be concretely addressed on the grounds of working mechanisms used in technological intervention. An abstract discussion based on purely theoretical possibilities whether moral enhancement interferes with freedom or not would inevitably end up in a futile antinomy (exercise of reasoning void of actual content), as long as there are no real, concrete technological methods of intervention used for moral enhancement.

2.3. "Double-Edged Sword"

A fundamental problem of moral enhancement, Harris points out, is the fact that "the sorts of traits or dispositions that seem to lead to wickedness or immorality are also the very same ones required not only for virtue but for any sort of moral life at all."[11] I also think that this problem is crucial. Harris cites Peter Strawson's article "Freedom and Resentment" and claims that "certain strong emotions, including aversions, are an essential and even desirable part of valuable emotions, motives or attitudes to others."[12] In saying so, what Harris has in mind is an aversion to evil. He fears that if we attenuate such emotions indiscriminately, we could weaken moral responses. Harris calls such a problem the "baby and bathwater" problem.[13] In other words, we attempt to correct immorality and actually undermine morality itself. I call this the problem of a "double-edged sword."

Douglas might have added his "Assumption 4" in order to exclude such unwanted side effects: "The *only* effects of Smith's intervention will be (a) to alter Smith's psychology in those (and only those) ways necessary to bring it about that he expectably has better post-*T* motives, and (b) consequences of these psychological changes." But it is extremely difficult to predict what indirect externalities a certain intervention will bring about in addition to intended direct consequences. Further, the possibility of abuse of the intervening technique is another aspect of this "double-edged sword." Douglas himself acknowledges the possibility of undesirable uses of moral enhancement techniques in the last part of his article "Implications": "It may be, for example, that if we were to develop

moral enhancement technologies, we would be unable to prevent their being used in undesirable ways – for example, to enhance self-interestedness or *im*morality." [14] If some method of moral enhancement (intervention in the moral judgment/behavior process) should ever be developed and used in undesirable ways, the result would be really catastrophic.

Persson and Savulescu also mention the possibility of "misuse of technology" in note 45 of their article: "It is also possible […] that […] interventions are developed which seriously harm humans and human society, such as by promoting docility, blind subordination to authority and loss of curiosity."[15] However, they are optimistic about this issue: "We may require moral enhancements at the highest order in order to prevent the modification of our dispositions to accept or realize very bad states of the world."[16]

But when they included their article in the anthology *Enhancing Human Capacities*, they largely revised the article, including its title[17], and concluded it with concern about the misuse of moral enhancement technology. "Biomedical moral enhancements, were they feasible, would be the most important biomedical enhancement. However, it must not be forgotten that they raise the same moral problems as all technological innovations: that of a proper application of them. In the case of techniques of moral enhancement this takes the form of a bootstrapping problem: it is human beings, who need to be morally enhanced, who have to make a morally wise use of these techniques."[18] They do not make clear what a "bootstrapping problem" means in the article.

In one sense, "bootstrapping" refers to the "starting of a

self-sustaining process that is supposed to proceed without external input."[19] According to this interpretation, an optimistic scenario would arise: when some burgeoning technique of moral enhancement is developed and applied, a self-sustaining chain-reaction-like process will proceed steadily without further external input.

In another sense, "bootstrapping" refers to the attempt to raise oneself up by pulling one's own bootstraps. Needless to say, it is an impossible, absurd attempt. In this second sense, the "bootstrapping problem" can also be called a "Münchhausen problem." According to the second interpretation, moral enhancement is an absurd, self-contradicting attempt totally guaranteed to fail. This is one of the most powerful arguments against moral enhancement.

2.4. "Moral Worth"

In the article "Enhancing Moral Conformity and Enhancing Moral Worth"[20] Douglas redefines moral enhancement as "moral conformity enhancement" since it increases the conformity of someone's conduct to a moral code. An intervention is a conformity enhancement "if and only if (i) one of the agent's aims, in undergoing the intervention, is to increase her moral conformity during some extended future time period, and (ii) if the intervention succeeds in realizing that aim."[21] And (moral) conformity enhancement is divided into two categories: *brute* conformity enhancement and *deliberative* conformity enhancement. The latter is, like traditional self-reflection and moral education, a conformity enhancement that consists in moral deliberation, which might involve "moral reasoning, introspective reflection on one's moral failures, or calm

moral discussion with others."[22] In contrast, if you regularly take pills which attenuate your anger and suppress aggressive misconduct, you are exempted from moral deliberations about why some aggressive behaviors are morally bad. Thus, the former conformity enhancement is called "brute" (non-deliberative).

Opponents offer the criticism that brute conformity enhancements are superficial and unreliable, therefore they will "result in less morally worthy conduct."[23] "Deliberative conformity enhancements frequently work by enhancing an agent's moral knowledge, moral understanding or moral judgment." On the other hand, brute conformity enhancements "would not normally operate by enhancing the agent's moral-epistemic resources. Rather, they would typically work by removing some relatively straightforward affective or conative obstacle to moral conformity."[24] Take anger for example. It is true that it often interferes with moral conformity, but there are also circumstances under which it will instead be conducive to moral conformity, for example, when you are confronted with a person assaulting another on the street, or with political oppression. Thus there are indeed cases in which some dose of anger is appropriate. Therefore, opponents argue that brute conformity enhancements are unreliable, at least more unreliable than deliberate conformity enhancements.

Douglas claims that brute conformity enhancements "could improve moral conformity by attenuating some emotion or desire that acts as a barrier to clear thinking or vivid imagination, both of which plausibly facilitate the acquisition of moral knowledge, understanding and judgment."[25] For now, when there are no concrete technological methods

of moral conformity enhancement, the debate whether the deliberative or the brute moral enhancement is more reliable than the other will also end up in a futile antinomy, since Douglas himself does not deny the unreliability of brute moral enhancement.

2.5. "Ratomorphism"

Persson and Savulescu emphasized the perils of terrorism in their first article. If technology continues to advance and its progress is accelerated by cognitive enhancement, the risk of mass destruction will be too high, until effective means of moral enhancement are found and applied.[26] Nikolas Rose and Joelle M. Abi-Rached doubt the possibility of preventing terrorism by suppressing aggression. [27] Criticizing "ratomorphism"[28] (attribution of rat characteristics or behavior to human beings; cf. anthropomorphism), they argue that "many circumstances commonly thought of as human aggression – fighting in wars, violence between gangs of youth, knife crime, for example – are not necessarily accompanied by an internal mental state of aggression. […] Suicide bombers kill as an act of faith or resistance and rarely out of misanthropy. Genocide, especially where groups mobilized by nationalist or other rhetoric brutally murder others with whom they have lived side by side for years, is another example that indicates that even apparently highly aggressive actions by human beings are shaped and often instigated by language and the mobilization of meanings, ideologies, and memories."[29] Terrorism is a highly complex phenomenon intertwined with various spheres including politics, economy, etc. It cannot be reduced solely from the viewpoint of aggression or morality.

Conclusion

Physical, cognitive and emotional enhancements have been well-discussed since we have examples in the form of drugs etc. and their off-label uses have become social problems. In contrast, as far as moral enhancement is concerned, the discussion has just begun since it remains a burgeoning theoretical possibility.

There exists no clear definition concerning moral enhancement. In a broader sense, it involves controlling human behaviors technologically, in particular to modulate (inhibit or promote) morally bad or good behaviors directly through technological intervention. We need to define "moral enhancement" more clearly before we go into the details of argument. Douglas gave good examples in this sense. In addition to definition, the possibility and feasibility of moral enhancement are also open questions.

Moral enhancement is entangled with boundary issues just as other types of enhancement: (a) moral *enhancement* or *treatment* of some behavior disorders or psychiatric diseases; (b) moral *enhancement* or *correction* of some behaviors to prevent (the repetition of) legal crimes; (c) biomedical moral *enhancement* or *training* using technology (systematic computer-assisted moral training, neurofeedback, etc.). It is certain that neuroscience and neurotechnology concerning the modulation and control of human behavior including the treatment of psychiatric diseases and mental disorders will advance. As with the cases of physical, cognitive and emotional enhancement, the techniques which have been developed for treatment will then be used in the gray zone between treatment and

enhancement, and they will eventually be used for sheer enhancement purposes. This is the issue of "dual use." Some people simply believe that if we prohibit the development of moral enhancement technology from the outset we can prevent problems from occurring at all. However, the issue of dual use clearly shows that we cannot be so optimistic. This is why we should take the issue seriously now.

We have to take into consideration not only the "danger of technology in general" but also the "danger of moral enhancement technology in particular." Persson and Savulescu emphasize the "danger of technology" to an extreme degree, while they underestimate the "danger of moral enhancement technology." This underestimation mandates the second interpretation of the "bootstrapping problem" of moral enhancement. How can morally lamentable people lift themselves out of the swamp of immorality by pulling their own bootstraps? Is moral enhancement the first step to a final solution of ethical issues, or is it rather the beginning of the end of ethics?

According to Adina Roskies, neuroethics consists of the "ethics of neuroscience" and the "neuroscience of ethics."[30] Moral enhancement, then, is a typical problem of the "neuroscience of ethics." If moral enhancement itself is fraught with ethical issues, these are the issues of the "ethics of the neuroscience of ethics." We have to trace these issues back to the basis of the reflexivity or recursiveness of ethics and neuroscience. Ethical issues of moral enhancement, i.e. the ethics of the neuroscience of ethics will be one of the most difficult problems of neuroethics in the 21st century and will bring about serious ethical, legal, and social concerns. Although it is not easy to assess the long-term

consequences and externalities of unknown technology in an uncertain world, we should now begin to consider the implications of moral enhancement, including normative assessment from the viewpoint of a desirable future human society.

Notes

[1] Thomas Douglas, "Moral Enhancement" in *Journal of Applied Philosophy*, Vol. 25, No. 3, 2008 (hereafter cited as Douglas 2008), p. 228. The article is also included in the anthology by Julian Savulescu et al. (eds.), *Enhancing Human Capacities*, 2011.
[2] Douglas 2008, p. 229.
[3] Douglas 2008, pp. 233-234.
[4] ibid.
[5] Ingmar Persson and Julian Savulescu, "The Perils of Cognitive Enhancement and the Urgent Imperative to Enhance the Moral Character of Humanity" in *Journal of Applied Philosophy*, Vol. 25, No. 3, 2008. The article is largely revised and also included in Savulescu et al. 2011.
[6] Persson and Savulescu 2008, p. 174.
[7] ibid.
[8] Elizabeth Fenton, "The perils of failing to enhance: a response to Persson and Savulescu" in *Journal of Medical Ethics*, Vol. 36, 2010.
[9] Ingmar Persson and Julian Savulescu, "The turn for ultimate harm: a reply to Fenton" in *Journal of Medical Ethics*, Vol. 37, 2011.
[10] John Harris, "Moral Enhancement and Freedom" in *Bioethics*, Vol. 25, No. 2, 2011, p. 103.
[11] Harris 2011, p. 104.
[12] Harris 2011, p. 105.
[13] ibid.
[14] Douglas 2008, p. 242.
[15] Persson and Savulescu 2008, p. 177.
[16] ibid.
[17] Ingmar Persson and Julian Savulescu, "Unfit for the Future? Human Nature, Scientific Progress, and the Need for Moral Enhancement" in Savulescu et al. 2011, pp. 486-500.

[18] Persson and Savulescu 2011, p. 498.
[19] *Wikipedia* (accessed 7/6/2014).
[20] Thomas Douglas, "Enhancing Moral Conformity and Moral Worth" in *Neuroethics*, Vol. 7, Springer, 2014.
[21] Douglas 2014, 78.
[22] ibid., p. 79.
[23] ibid., p. 80.
[24] ibid., p. 87.
[25] ibid., p. 89.
[26] Cf. Persson and Savulescu 2008, p. 174.
[27] Nikolas Rose and Joelle M. Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind*, 2013.
[28] Rose and Abi-Rached 2013, Chapter Three: "What's Wrong with Their Mice?"
[29] Rose and Abi-Rached 2013, p. 98.
[30] Adina Roskies, "Neuroethics for the new millennium" in *Neuron*, Vol. 35, 2002, pp. 21-23.