

MORAL ENHANCEMENT BY TECHNOLOGICAL MEANS: POSSIBLE, PERMISSIBLE, A DUTY?

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ABSTRACT

Attempts to enhance individual and communal morality are as old as human communal living itself. But only recently have philosophers, bioethicists and scientists begun to seriously consider the possibilities and implications of employing technological interventions into the human body, especially the brain, in order to enhance traits and capabilities that underlie what we might term as moral reasoning, action and behavior. Some illicit drugs, prescription pharmaceuticals and non-invasive brain stimulation techniques have been shown to have effects on diminishing or enhancing certain of our mental traits that constitute moral thinking, action and behavior in healthy adults. This hints at the possibility of targeted interventions that might predictably improve individual and communal morality and through it societal cooperation. The first part of the paper will delve into some of the conceptual issues connected with moral enhancement as part of the broader trend of cognitive enhancement and human enhancement in general. The second part will look at some experiments and interventions that support the plausibility of technologically enhancing moral reasoning and moral behavior. The third part will present some of the arguments that have been written both for and against moral enhancement, including whether we might in certain situations have a duty to morally enhance ourselves. The final part looks at some further dilemmas of whether we might already be enhancing ourselves morally through some commonly prescribed pharmaceutical drugs, and what a (further) “medicalization” of moral deficits might mean.

KEY WORDS

moral enhancement, duty, neuroenhancement, pharmacological cognitive enhancement, virtue

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WHAT IS MORAL ENHANCEMENT

Generally, human enhancement can be seen as the use of direct technological interventions into the human body with the goal of enhancing the average or normal capabilities of healthy adults. The aim of such interventions is to extend the healthy lifespan, improve physical capabilities, and enhance cognitive capacities, including mood, in short, to make us healthier, smarter, happier and longer lived [1, 2]. Much of the discourse on human enhancement has so far revolved around cognitive enhancement, technological interventions to improve, for example, concentration, memory, learning, problem solving, decision-making, etc. in healthy adults. A big part of the reason for this is that in contrast to many other potential human enhancement technologies, which are still in the early R&D phase or purely theoretical, certain prescription pharmaceuticals, illicit drugs, dietary supplements and non-invasive brain stimulation devices, such as transcranial magnetic stimulation and transcranial current stimulation devices [3, 4], are already available in the healthcare, consumer or illicit markets and are being used by self-experimenters, certain professional groups, and students among others [5, 6]. Only recently have some philosophers and bioethicists begun a discussion on the possibility of using such technological means in order to enhance what we might term morality, that is, improving moral reasoning, action and behavior [7, 8].

While we might view the whole history of human communal living as attempts to promote, enhance and enforce morality in order to benefit the group or community, such attempts were mostly restricted to community enforcement through education and sanctions, moral codes and societal mores.

In parallel, and at least for the entire history of human civilization, we can also observe many attempts to enhance individual moral traits by pursuing personal quests for enlightenment and liberation through meditation, fasting, prayer and other ascetic practices, some of which have grown into sociocultural and religious movements and communities such as the various strands of Buddhism, the Jainism community and various New Age movements and communities. While both of these endeavors at least nominally pursue a common goal, there can be many different ways of interpreting what is moral, and while there are at least some human moral universals that span times and cultures, there is also much variation and change in regard to what is deemed moral and immoral, and to what extent the wellbeing of the individual can be sacrificed for the “good” of the community.

The Anthropocene age, with its increasing understanding of the structure and function of the biological systems that make up the human body, as well as a growing array of tools that can influence or even enhance its various capabilities and functions, now offers the possibility of using technological interventions to enhance the moral capabilities of healthy individuals who do not fall into any abnormal psychological category.

It is certainly no easy task trying to define what the moral traits and capabilities that we need to enhance in order to enhance morality are. Moral philosophy and psychology as well as cognitive science and neuroscience have long struggled to discover and map the psychological traits and the underlying neurophysiological systems that constitute moral reasoning and moral behavior. While considerable progress has been made in this regard, we are still far from knowing all the details and intricacies of the mental processes that lead to the execution of a moral action, let alone of the underlying biological systems and processes involved.

Morally enhancing an individual would mean increasing the probability that they will behave the “right” way in a certain situation and reducing the chances that they will behave the “wrong” way in the same situation. Although the notion of right and wrong may seem vague

and may differ across societies and cultures (viewing morality as a culturally relative construct), there do exist universal tendencies, which have been observed by scientists in various fields. The philosopher Immanuel Kant spoke of “the moral law within”, various anthropologists have found moral sentiments to be one of these human universals [9], and there are also neurobiological components suggesting we may have an innate sense of morality [10]. As with language, it is suggested that we have an evolved capacity to learn moral systems, which have proved useful in navigating complex social environments, thus increasing the chances of our survival and reproductive fitness. However, this system has not been subject to further evolution since the time we were living in small communities, and may need to be adapted or updated by technological enhancement means in order to adapt our moral capabilities to the demands of living in complex societies and a global, interconnected and interdependent community, enabled and dependent on all the technological advancements that were not present in the past. Our sphere of moral care may be expanding, but this may not be occurring at a rate proportional with the rapidly growing power such advancements are putting into the hands of small groups and individuals.

In order to better understand what we might mean by moral enhancement, we could start off with a list of traits that we associate with moral persons, such as strength of character, self-control, kindness, compassion, tolerance, altruism and others. Still, many of these are context dependent in the sense that their outcomes could result in the improved wellbeing or in the increased suffering of others. In order to deem something moral, we must usually consider it in its wider, specific sociocultural context, taking into account its immediate and also long-term consequences.

The enhancement of one trait involved in moral reasoning and action, for example self-control, could result in the diminishment of another, for example risk taking, and thus lead to a reduced willingness to take risks to help others.

Ultimately, we are talking about an interconnection between our evolutionary conditioned responses to the environment and the behavior of other members of our species, and culturally produced and contextually specific norms and practices.

Although specific types of morality are created, transferred and transformed in interpersonal relationships within a community or society in complex feedback loops involving our evolved instincts and emotions, they still remain encoded in the specific brain structures of individuals. And possessing the technological tools that can influence these neurological structures, hints at the real possibility of manipulating these structures and through them the mental mechanisms underlying moral thinking and action.

THE MEANS OF MORAL ENHANCEMENT

While defining moral enhancement remains elusive, we can recognize traits and tendencies that are connected with moral reasoning, action and behavior and interventions that produce changes in those traits and outcomes. As we have hinted, throughout history individuals, communities and cultures have developed a vast array of tools that are intended to enhance the morality of its members and through it the survival and functioning of the communities.

In recent times, various experiments have shown that non-invasive brain stimulation devices, prescription pharmaceuticals, illicit drugs, and dietary supplements can influence the various traits and mechanisms involved in moral thinking and action.

Experiments with transcranial magnetic stimulation have for example shown effects on moral reasoning, for example by reducing the influence of beliefs on the moral judgment of actions or the compliance with socially constituted sanctions [11, 12]. The use of transcranial current

stimulation for example reduced the tendency to punish unfair behavior [13]. Further experiments have investigated the effects of antidepressants, hormones, blood-pressure medication and illicit drugs. An increased level of serotonin through the use of SSRI antidepressants in healthy people could enhance resistance to violent actions that harm other people and thus influence moral judgment and moral actions [14]. The use of oxytocin, the bonding hormone, has had an impact on the moral behavior of healthy adults, but differently for men and for women. Women behaved in a more altruistic manner, while men behaved more selfishly [15]. Taking propranolol for high blood pressure reduced the implicit racial bias in healthy people performing jury duty [16]. The use of MDMA or “ecstasy” strengthened the recognition of emotions, emotional empathy and prosocial behavior in healthy volunteers, but again differently in women and in men [17]. Using theanine, the amino acid found in tea and responsible for calming effects on the nervous system, might make people less prone to impulsive decisions and reactions made in anger.

There is also considerable overlap of the techniques for moral enhancement with the other categories of human enhancement, especially cognitive enhancement and the interventions that have been employed to enhance various cognitive abilities in that context [3]. Being better able to concentrate, recall facts, and make quality decisions makes us more capable of good moral reasoning. Taking a cognitive stimulant that enhances motivation and self-control could give us the motivation and self-restraint to perform moral actions of which we might not be capable otherwise.

Further, our current moods and perceptions of the world and of ourselves, if positive, generally make us more tolerant, forgiving, loving, helpful and kind. Feeling like we are having a “pretty good day” can thus make us more moral than if we feel like we are having a bad day. In that sense, technological mood enhancement might also be seen as contributing to moral enhancement.

We should acknowledge that both our internal states and our surrounding environment strongly influence our capacity to think and to behave morally. Experiments in psychology, such as those performed by Milgram and Zimbardo, have shown that we have a strong tendency towards group and social conformity when we perceive a strong consensus, but again, strengthening our internal moral capabilities might make us better able to perform moral actions that might go against the prevailing behavior of the community. Whether such actions would be judged as moral or immoral of course depends on the observer and the sociocultural context. But we might at least argue that enhancing the traits that promote loving kindness would be less likely to result in moral actions which nevertheless hurt the wellbeing of others.

Finally, as we have noted before, enhancing only one capability or trait could lead to the diminishment of others, which are equally important in performing moral reasoning and actions. In this regard, it would be necessary to engage in an endeavor that would enhance and develop all virtues of one’s character in a balanced manner in order to produce a well-rounded “virtuous person”.

To avoid the problematic consequences of enhancing one trait at the expense of diminishing another, Hughes [18] suggests a holistic approach of modulating and balancing virtues. This can be imagined and represented as the creation of a control panel for moral sentiment and cognition with dials or sliders representing neurological traits that need to be tuned. These “sliders” would be “tuned” through the application of enhancement technologies that regulate specific neurological traits to the desired degree. As for the traits themselves, he puts forward a minimal model, based on previous models, which empirically structure the concepts of virtues in correspondence to their underlying neurological mechanisms. These consist of four

categories: self-control (sophrosyne¹, restraint, conscientiousness, temperance), niceness (agreeableness, extraversion, empathy, fairness), intelligence (phronesis², open-mindedness, curiosity, love of learning, prudence), and positivity ((lack of) neuroticism, emotional self-regulation, positivity, bravery, humor). An example of this type of balancing would be modulating the traits of self-control, empathy and mindfulness in conjunction with enhancing intelligence, since too much deliberation (arising from the trait of intelligence) can have a negative effect on decision-making [19].

So as with most endeavors, it might be prudent to take a more comprehensive, holistic approach to moral enhancement. In this way, using drugs or non-invasive brain stimulation should not be seen as a replacement, but possibly as a complementary addition to more traditional means of enhancing morality, such as character building, virtue development, education, meditation, etc. Another, perhaps less controversial venue of technologies that could enhance our moral behavior, would be the use of apps or trackers that would remind us, prompt us and warn us whenever we are to engage in moral behavior, to take a certain, predefined action. We might view these as external morality algorithms, as outsourced moral mechanisms, or as a high-tech version of the “What Would Jesus Do” armbands popular as morality reminders in the US.

THE PERMISSIBILITY AND DUTIFULNESS OF MORAL ENHANCEMENT

While the experiments and the technological means of enhancing some aspects and traits that influence moral reasoning and behavior described above represent only the first tentative generation of technological interventions for moral enhancement, they do raise the question of whether such interventions should be socially permissible, and further, whether in specific situations we might actually have a duty to enhance ourselves morally by technological means.

For example, Savulescu and Sandberg [7] have argued that couples who are freely and rationally committed to a relationship should be free to pursue the strengthening of this relationship by employing various means, including pharmacological substances that enhance feelings of love and bonding, which would lead to greater emotional commitment, satisfaction and fidelity, if they so choose. They have further extended this argument that individuals in specific situations or circumstances should not only be permitted to engage in moral enhancement, but might actually have a duty to do so (a moral duty, not a legal obligation) [20]. In this regard they argue that especially parents with children might have a duty to try and make their marriage work, as long as there are reasonable grounds for both parties to do so, including using technological means, which could be added to the category of marriage therapy.

If we pursue such an argument further, we might ask ourselves whether people in certain professions or in positions of responsibility might have a similar duty to morally enhance themselves, including through technological means. Would it make sense to say that members of a jury should consider it to be their duty to use enhancements in order to deliver a more objective verdict? Would a judge have a duty to be morally enhanced in order to pass a more rational and dispassionate verdict? Here we should also keep in mind whether we want a verdict that is compassionate and loving kind, or one that is dispassionate and objective, or more precisely what the balance between the two extremes should be? What about politicians? CEOs of companies? Would we want them to be morally enhanced?

Further arguments for moral enhancement have been made regarding issues that pertain to the Great Societal Challenges, such as climate change, dwindling resources in terms of food and water, environmental degradation, etc., as well as the issues of global justice and solidarity. Some authors [21] have proposed that (voluntarily) taking a pharmacological substance that

made one sick when ingesting meat could be seen as a sort of moral enhancement (or moral therapy, depending on one's viewpoint) that would address the discrepancy between a person's rational, ethical commitment to being a vegetarian and feeling a strong, innate craving for animal meat. Other intervention could pertain to increasing our capability to feel moral sympathy, compassion towards the plight of larger numbers of people in distant lands. From studies in cognitive science and psychology it is well known that we are innately capable of feeling great emotional support and sympathy for people who are part of our community and with whom we have close personal ties and relationships (with our “kith and kin”), but not with people whom we know only in the abstract, that is, people in war-torn countries, the world's poorest masses, etc, even though the numbers of suffering individuals in the two groups can be grossly disproportional.

Ultimately, Persson and Savulescu have also argued that as our technological capabilities, including other forms of human enhancement such as cognitive enhancement, grow, it will be necessary for humans to enhance themselves morally through technological means, as the destructive power that is available to an individual person through technological development increases rapidly [22].

On the other hand, if we were to enhance ourselves in order to be less prone to violence, would this affect our capability for self-defense, or our capacity to rise up and struggle against an unjust authority and society? Would an increased capacity for empathy make us insufficiently rational and egotistical to be able to normally function in the world, or would we be emotionally compelled to give away all our possessions to people who are in greater need than we are?

Some further dilemmas pertain to the morals specific for temporally different sociocultural epochs. For example, until the quite recent past, it was considered widely morally acceptable (and legally permissible) to hold specific groups or ethnicities of people in slavery, to allow women only a very limited set of freedoms and rights, and to hold specific sociocultural or intimate practices as morally objectionable (and even legally sanctionable). For example, the freedom of being homosexual is still a widely contested issue. Then there is the question of different values in different political regimes. We can imagine that most of the liberal democracies would promote a very different set of values and traits (in the moral sense) than would secular strongly authoritarian countries, such as North Korea, or extreme theocracies, such as the Islamic State of Iraq and Syria (ISIS). Here it might be prudent to emphasize that moral enhancement should not go in the direction of promoting a specific temporally and culturally too narrow or closed moral belief system, but should instead enhance a (preferably balanced) set of capacities that provide the individual with the cognitive and affective apparatus to be able to judge things in a more open and empathic manner, while promoting one's sense of rationality and critical decision-making. In this regard, at least in a normative sense, we would propose following an eudaeimonic³ approach as advocated by Hughes [23].

Still, as most of the enhancement possibilities that we have mentioned are still only very early and tentative indications, there is a need for much more research and experimentation before we can ascertain, in an empirical sense, whether it is more likely specific interventions will promote narrow, specific moralities, or an overall, well balanced individual in the sense of an virtue ethics approach.

INSTEAD OF A CONCLUSION

As we have noted, many of the technological interventions that influence mental systems and capacities connected to moral thinking and action, are prescription pharmaceuticals, which means that many patients across the world are already using them and might be subject to their morality enhancing side effects [23].

Finally, all this raises the question if the examples described above represent the actual enhancement of moral capabilities in average healthy people or "only" the treatment of below average or diminished capacities in people with diseases, injuries or disabilities, or neuropsychological structures that could be labeled as psychopathic or sociopathic. This leads us to the question of whether even less extreme versions of antisocial behavior might in the future become categorized as illnesses or malfunctions that need to be treated in a medical context. This raises wide-ranging implications for the concepts of personal responsibility and free will, which have already been opened by modern neuroscientific research and brain imaging, for example in the fields of insurance and law, as well as societal engagement.

And whenever the debate extends beyond what rational individuals should be permitted to do if they so choose in pursuit of their desires and goals as long as they do not harm others, we should be careful of discourses that turn to what might be seen as mandatory biomedical treatment of individuals who are "morally deficient", especially if that morality is defined in terms of narrow societal norms and historically bound mores.

REMARKS

¹An ancient Greek concept of an ideal of excellence of character and soundness of mind, in some interpretations considered the opposite pole of hubris [24].

²An ancient Greek concept pertaining to a type of wisdom relevant to practical things, requiring an ability to discern how or why to act virtuously and encourage practical virtue, excellence of character. Translated as practical wisdom and interpreted by some authors as equivalent to mindfulness [25].

³Used in the sense of promoting human or personal flourishing, derived from an overall and balanced development of various capacities and/or virtues.

REFERENCES

- [1] Bostrom, N. and Roache, R.: *Human Enhancement: Ethical Issues in Human Enhancement*. In: Ryberg, J.; Petersen, T.S. and Wolf C., eds.: *New Waves in Applied Ethics*. Palgrave Macmillan, pp.120-152, 2008,
- [2] Hughes, J.J.: *Citizen Cyborg: Why Democratic Societies Must Respond to the Redesigned Human of the Future*. Westview Press, 2004,
- [3] Bostrom, N. and Sandberg, A.: *Cognitive enhancement: Methods, ethics, regulatory challenges*. *Science and Engineering Ethics* **15**(3), 311-341, 2009, <http://dx.doi.org/10.1007/s11948-009-9142-5>,
- [4] Reis, J. et al.: *Noninvasive cortical stimulation enhances motor skill acquisition over multiple days through an effect on consolidation*. *Proceedings of the National Academy of Sciences of the United States of America* **106**(5), 1590-1595, 2009, <http://dx.doi.org/10.1073/pnas.0805413106>,
- [5] Sahakian, B. and Morein-Zamir, S.: *Professor's little helper*. *Nature* **450**, 1157-1159, 2007, <http://dx.doi.org/10.1038/4501157a>,
- [6] Smith, M.E. and Farah, M.J.: *Are Prescription Stimulants "Smart Pills"? The Epidemiology and Cognitive Neuroscience of Prescription Stimulant Use by Normal Healthy Individuals*. *Psychological Bulletin* **137**(5), 717-741, 2011, <http://dx.doi.org/10.1037/a0023825>,
- [7] Savulescu, J. and Sandberg, A.: *Neuroenhancement of Love and Marriage: The Chemicals Between Us*. *Neuroethics* **1**(1), 31-44, 2008, <http://dx.doi.org/10.1007/s12152-007-9002-4>,

- [8] Douglas, T.: *Moral Enhancement*.
Journal of Applied Philosophy **25**(3), 228-245, 2008,
<http://dx.doi.org/10.1111/j.1468-5930.2008.00412.x>,
- [9] Brown, D.E.: *Human universals*.
McGraw-Hill, New York, 1991,
- [10] Harris, S.: *The Moral Landscape: How Science Can Determine Human Values*.
Free Press, New York, 2011,
- [11] Young, L. et al.: *Disruption of the RTPJ with TMS reduces the role of beliefs in moral judgments*.
Proceedings of the National Academy of Sciences of the United States of America **107**(15), 6753-6758, 2010,
<http://dx.doi.org/10.1073/pnas.0914826107>,
- [12] Ruff, C.C. et al.: *Changing Social Norm Compliance with Noninvasive Brain Stimulation*.
Science **342**(6157), 482-484, 2013,
<http://dx.doi.org/10.1126/science.1241399>,
- [13] Knoch, D. et al.: *Studying the Neurobiology of Social Interaction with tDCS – The Example of Punishing Unfairness*.
Cerebral Cortex **18**(9), 1987-1990, 2008,
<http://dx.doi.org/10.1093/cercor/bhm237>,
- [14] Crockett, M.J. et al.: *Serotonin selectively influences moral judgment and behavior through effects on harm aversion*.
Proceedings of the National Academy of Sciences of the United States of America **107**(40), 17433-17438, 2010,
<http://dx.doi.org/10.1073/pnas.1009396107>,
- [15] Scheele, D. et al.: *Opposing effects of oxytocin on moral judgment in males and females*.
Human Brain Mapping **35**(12), 6067-6076, 2014,
<http://dx.doi.org/10.1002/hbm.22605>,
- [16] Terbeck, S. et al.: *Propranolol reduces implicit negative racial bias*.
Psychopharmacology **222**(3), 419-424, 2012,
<http://dx.doi.org/10.1007/s00213-012-2657-5>,
- [17] Hysek, C.M. et al.: *MDMA enhances emotional empathy and prosocial behavior*.
Social Cognitive and Affective Neuroscience **9**(11), 1645-1652, 2014,
<http://dx.doi.org/10.1093/scan/nst161>,
- [18] Hughes, J.J.: *Moral Enhancement Requires Multiple Virtues*.
Cambridge Quarterly of Healthcare Ethics **24**(1), 86-95, 2014,
<http://dx.doi.org/10.1017/S0963180114000334>,
- [19] Michael, K. et al.: *Damage to the prefrontal cortex increases utilitarian moral judgements*.
Nature **446**(7138), 908-911, 2007,
<http://dx.doi.org/10.1038/nature05631>,
- [20] Earp, B.D.; Sandberg, A. and Savulescu, J.: *Natural Selection, Childrearing, and the Ethics of Marriage (and Divorce): Building a Case for the Neuroenhancement of Human Relationships*.
Philosophy & Technology **25**(4), 561-587, 2012,
<http://dx.doi.org/10.1007/s13347-012-0081-8>,
- [21] Liao, M.; Sandberg, A. and Roache, R.R.: *Human Engineering and Climate Change*.
Ethics, Policy & Environment **15**(2), 206-221, 2012.
- [22] Persson, I. and Savulescu, J.: *Unfit for the Future: The Need for Moral Enhancement*.
Oxford University Press, Oxford, 2012,
<http://dx.doi.org/10.1093/acprof:oso/9780199653645.001.0001>,
- [23] Levy, N. et al.: *Are You Morally Modified?: The Moral Effects of Widely Used Pharmaceuticals*.
Philosophy, Psychiatry & Psychology **21**(2), 111-125, 2014,
<http://dx.doi.org/10.1353/ppp.2014.0023>,

- [24] North, H.: *Sophrosyne: Self-knowledge and Self-restraint in Greek Literature*.
Cornell University Press, New York, 1966,
- [25] McEvilley, T.: *The Shape of Ancient Thought: Comparative Studies in Greek and Indian Philosophies*.
Allworth press, New York, 2002.