

# Moral Enhancement, Instrumentalism, and Integrative Ethical Education

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## Abstract

In this chapter I will discuss some of the arguments presented in *Unfit for the Future*, where the authors stress the necessity of moral enhancement to prevent a global catastrophe. Persson and Savulescu promote a reductionistic view of moral intuitions suggesting that oxytocin, serotonin, and genetic treatments could save humanity from the perils of contemporary liberalism, weapons of mass destruction, and uncontrolled pollution. I will contend that although we need a moral enhancement it cannot be a brute manipulation of our biology but something where human plasticity is seen as paramount. Following the lesson of Dewey's instrumentalism, I advocate a non-reductionistic, pluralistic view where neuroscientific data may be used to develop a more effective moral pedagogy. In my opinion, this prospect is currently much more feasible (and less risky) than a hypothetical mass psycho-civilisation created using drugs and electrodes.

## 1. Introduction

In 1963, when neuroscientist José Delgado stopped a bull from charging at him by pressing a button on a remote control, the idea of exploiting our knowledge about the brain to manipulate human behaviour suddenly seemed possible. Six years later, Delgado gave an overview of the risks and opportunities concerning brain stimulation in relation to a future “psycho-civilised” society.<sup>1</sup> Shortly afterwards Mark and Ervin argued that the permanent elimination of violence was possible by surgically manipulating the limbic system.<sup>2</sup> Those instruments that were originally meant to treat neurological and mental diseases now seemed to provide an opportunity to address social ills.

Forty years later the psycho-civilisation dream seems far from becoming a reality. Nevertheless, there have been several studies

<sup>1</sup> José Delgado, *Physical Control of the Mind: Toward a Psychocivilized Society* (New York: Harper and Row, 1969).

<sup>2</sup> V. H. Mark and F. R. Ervin, *Violence and the Brain* (New York: Harper & Row, 1970).

aimed at testing the relationship between neurophysiology, moral intuitions,<sup>3</sup> and pro-social behaviour, by investigating the involvement of the limbic system in behavioural responses; for example, by observing the impact of oxytocin on affiliative attitudes.<sup>4</sup> Some feel that hard science is slowly taking over the study of human behaviour, and this has exacerbated the conflicts between the humanities and sciences, reductionism and pluralism.

Although the idea of mass brain-grafting is mostly relegated to dystopian literature, Persson and Savulescu have raised again the question of moral enhancement and recently published its manifesto: *Unfit for the Future*.<sup>5</sup> The authors argue for the legitimacy of pharmacological and genetic manipulations to enhance the moral behaviour of citizens of mass democracies, which is, they claim, a necessary step towards eco-sustainable liberalism.

The aim of this chapter is to highlight practical and conceptual issues of those enhancement proposals, shifting from unlikely moral-pharmacogenetic engineering to an interdisciplinary study with human plasticity at its core. As such, I will first focus on Persson and Savulescu's proposal before examining in depth the problems of reductionism, taking into consideration John Dewey's thoughts on human nature and science. It is my conviction that Dewey's instrumentalism can be used not only to account for the irreducibility of ethics to the hard sciences, but also to prefigure a kind of moral enhancement centred on education and childcare. I will conclude this chapter by claiming that Darcia Narvaez's research offers a good example of how neuroscience should be integrated into a holistic approach focussed on personal experience and the social context of the individual.

## **2. Moral Enhancement According to Persson and Savulescu**

Contrary to the psycho-civilisation theorists of the 1970s, what bothers Persson and Savulescu most is not violence and aggression but the dangerous synergy between common sense morality, technological advancement, and liberal democracy. For example, modern

<sup>3</sup> See for example M. D. Hauser, *Moral Minds: How Nature Designed Our Universal sense of Right and Wrong* (New York: HarperCollins, 2006).

<sup>4</sup> See for example Paul Zak, *The Moral Molecule: The New Science of What Makes Us Good or Evil* (London: Bantam Press, 2012).

<sup>5</sup> Ingmar Persson and Julian Savulescu, *Unfit for the Future: The Need for Moral Enhancement* (Oxford: Oxford University Press, 2012).

weapons of mass destruction give a small number of individuals the power to cause catastrophic damage, and it is not too hard to imagine the threat that weapons would pose if they were to fall into the hands of fundamentalist groups. As if that were not enough, the principles governing Western democracies are proving to be a source of severe problems too: excessive emphasis on values such as individual freedom has allowed citizens and entrepreneurs to build a consumer society that has taken environmental pollution levels well beyond the critical threshold, while the obsession with the right to privacy obstructs the tapping of terrorists.

Persson and Savulescu contend that the abovementioned problems stem primarily from a flaw in our common sense morality, which is mostly genetically determined and makes it difficult for moral pedagogy to be effective. In particular, there are two things wrong with our biological heritage: the tendency to limit our trust and altruism to a small group of people and the so-called 'bias toward the near future'.<sup>6</sup> These characteristics evolved to fulfil the needs of our ancestors, who lived in small groups and could not afford the luxury of making long-term plans. Xenophobia, for example, evolved as a defence mechanism because 'when synchronic cooperation involves innumerable agents, or is of long duration, it is usually harder to detect if someone defects or free-rides'.<sup>7</sup> In other words, limiting altruism and trust to a small group of people was a way to increase the chance of survival. The "bias toward the near future" has a similar justification: the life expectancy of our ancestors was low and that forced them to think of their present needs rather than pondering on any long-term damage they might have caused with their actions or omissions. This is clearly not compatible with our modern globalised society, where citizens of mass democracies keep consuming energy and accumulating waste as if the situation was not that serious, when in fact the consequences of climate change are very real and cannot be undone. We should instead extend our range

<sup>6</sup> Persson and Savulescu also emphasise a third problem: the conception of responsibility as causally-based, according to which we tend to consider ourselves more responsible for harm we physically cause than for harm we let happen by omission. Moreover, causally-based responsibility is 'proportionally diluted when we cause things together with other agents', and this has led to climate change because individuals tend not to worry about how much they pollute as they believe their damage is negligible on global scale. See Persson and Savulescu, *Unfit for the Future*, 22–26.

<sup>7</sup> Persson and Savulescu, *Unfit for the Future*, 37.

of trust and work together to redistribute wealth equally and avoid environmental disaster.

The conclusion is that modern humans, even the most virtuous, must reckon with a serious evolutionary disadvantage: the mechanisms underlying moral intuition and social behaviour are still those that evolution developed for life in ancient hunter-gatherer societies. However, Persson and Savulescu point out that if the problem is bio-evolutionary, then we could intervene to avoid ultimate harm. They cite de Waal's studies on capuchin monkeys and Wallace's on homozygote twins in support of the thesis that a sense of justice is genetically determined, and refer to Kosfeld, Zak, Tse, Bond, and Crockett to show how intervention on oxytocin and serotonin circuits could incentivise pro-social conduct, i.e., greater altruism, generosity, trust, and the sense of fairness.<sup>8</sup> These studies demonstrate that biomedical tools can already intervene in our moral behaviour effectively and, in the future, may be employed to overcome the lack of effectiveness of moral pedagogy.

Persson and Savulescu then explain what moral enhancement should consist of, and in their controversial chapter 'Moral Enhancement as a Possible Way Out' they answer those critics who see in their proposal just another manifestation of scientific reductionism. The crucial point of this chapter is the attempt to configure bio-enhancement as something that can change moral motivations without transforming the individual into a "mindless robot". Persson and Savulescu write:

Education or instruction about what is morally good is not sufficient for moral enhancement because to be morally good involves not just knowing what is good, but also being so strongly motivated to do it that this overpowers selfish, nepotistic, xenophobic, etc., biases and impulses.<sup>9</sup>

According to the authors, proper moral enhancement should aim to overcome those biological obstacles that obstruct the 'motivational internalization of moral doctrines'<sup>10</sup> and, therefore, the realisation of good conduct. Therefore, it is not a matter of incorrectly identifying what is right and what is wrong, but of not acting in accordance with what we have identified as the right thing to do because of factors such as our "bias to the near future", selfish disposition,

<sup>8</sup> See Persson and Savulescu, *Unfit for the Future*, 110–111, 118–120.

<sup>9</sup> Persson and Savulescu, *Unfit for the Future*, 117.

<sup>10</sup> Persson and Savulescu, *Unfit for the Future*, 107.

and xenophobic tendencies. Persson and Savulescu clarify their position with the following:

We imagine that the moral motivation of those of us who are less morally motivated be increased so that it becomes as strong as the moral motivation of those of us who are by nature most morally motivated, not that this moral motivation be increased to the point at which it becomes irresistible, like a kleptomaniac's desire to steal.<sup>11</sup>

The authors do not talk about forcing the individual to behave in a certain way, but rather about eliminating those obstacles that prevent an individual from acting on what it is considered the right thing to do: those obstacles are the same as those that cause environmental pollution, the growing impoverishment of the Global South, and the excessive *laissez-faire* economics of Western democracies. Persson and Savulescu are convinced that through bio-enhancement of the empathetic response, the sense of fairness, and the sympathetic concern for the well-being of others, it could be possible to create a less selfish citizen, more forward-thinking, more open to give up certain liberties in order to save the planet and its inhabitants.<sup>12</sup> Towards the end of the book, however, the authors admit:

[M]oral bioenhancement worthy of the name is practically impossible at present and might remain so for so long that we will not master it, nor succeed in applying it on a sufficient scale, in time to help us to deal with the catastrophic problems that we outlined. But our point is just that the predicament of humankind is so serious that all possible ways out of it should be explored. Therefore, it is important that moral bioenhancement is not written off without good reason.<sup>13</sup>

My central objection is that a catastrophic prediction, while realistic, is not a sufficient condition to justify the desirability of moral enhancement. In fact, there are good reasons for us to doubt the desirability of moral enhancement if a) the complexity of moral phenomena and b) the plasticity of individuals are not taken into consideration.

Let us consider this point: Persson and Savulescu suggest that there are not only dysfunctional traits in human nature, but also good ones (altruism, a sense of justice, empathy, etc.), and that

<sup>11</sup> Persson and Savulescu, *Unfit for the Future*, 113.

<sup>12</sup> Persson and Savulescu, *Unfit for the Future*, 90.

<sup>13</sup> Persson and Savulescu, *Unfit for the Future*, 123.

enhancing the latter would neither compromise our ability to judge nor compromise our freedom:

[A] judicious use of effective techniques of moral bioenhancement to increase a sense of justice and altruism will not reduce our freedom and responsibility; it will simply make it the case that we are more often, perhaps always, causally determined to do what we take to be good. It will do so by amplifying those biological factors that by nature are strong in those of us who are morally better.<sup>14</sup>

However, to characterise virtues and vices as mere biological factors that can be fruitfully manipulated with biomedical tools is to address the problem from a limited perspective. In fact, moral action and its motivations can neither be reduced to the artificial conditions of experiments nor explained by greater or lesser concentration of hormones in the blood: the virtues of altruism, generosity, honesty, and self-sacrifice are acquired through practice in a social context and are products of psycho-physical integration. They are a sort of embodied know-how that requires continuous exercise to gain and maintain in a fine attunement of cognition, emotion, and bodily powers.<sup>15</sup> The only integration Persson and Savulescu propose instead is between indoctrination, genes, and neurons, as if intervening on brain chemistry would be enough to internalise values and virtues, an internalisation that, I suggest, would impair the ability to obtain a complete picture of a given situation by limiting our behaviour to certain patterns.

My main concern is that from the moment the subject is psychologically and biologically limited to a certain behaviour, that behaviour becomes routine and less prone to adapt. Even if drugs and genetics could intervene on behaviour in a positive way,<sup>16</sup> they

<sup>14</sup> Persson and Savulescu, *Unfit for the Future*, 112.

<sup>15</sup> See Wiseman, *The Myth of The Moral Brain: The Limits of Moral Enhancement* (Cambridge and London: The MIT Press, 2016), 171–173.

<sup>16</sup> Opinions here are divided. Some studies on oxytocin, for example, show that the strengthening of bonding responses is sensitive to the peer group, so much so that it can even reduce pro-social attitudes towards outside groups if this would bring an advantage to their own circle. See C. de Dreu, et al., 'The Neuropeptide Oxytocin Regulates Parochial Altruism in Intergroup Conflicts Among Humans', *Science* **328**:5984 (2010), 1408–1411. This is not the only case: Wiseman has gathered some conflicting evidence to show that, for example, oxytocin tends not to be particularly efficacious with respect to those persons who lack a pre-existing good disposition. Similarly, serotonin has produced some undesirable

should be used such that enhanced human beings do not become moral automata. Moreover, indiscriminate enhancement of certain abilities may have unwanted side effects. Shook, for example, writes:

[H]eighted empathy and caring should result in greater generosity, but is there common agreement that generosity should be generically elevated across the entire population? We may say that we wish people were more generous, but what we really mean is that ungenerous people should be more generous, or that other people should be more generous to *us*, or perhaps that people should be more generous to others who *deserve* it. Heightened levels of trustworthiness or truthfulness wouldn't be morally wise either, unless matched by a sound ability to discriminate who really deserves one's trust or confidence. The overall problem here is that the maintenance of human morality requires preparedness to judge, condemn, and appropriately punish; dispositions to caring more, by themselves, can ignore or erode those moral obligations.<sup>17</sup>

This quote offers an example of how our moral dispositions should be integrated in a context that is not restricted to excessively liberal democracies. There are cases when it is better not to collaborate or be generous or else to keep a certain emotional distance. The tools of genetics and neuroscience we have at our disposal today cannot handle the difference between cases, nor can they help the individual in better identifying those differences; rather, neural manipulation of emotions and the input of motivational ties risk compromising one's rational capabilities.<sup>18</sup>

Problems such as these are the reason why authors like Wiseman and, similarly, Specker,<sup>19</sup> believe that speculating on unrealistic scenarios such as pharmaco-genetic engineering of morals is unproductive. According to them, research on moral enhancement should

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effects like increased premeditated aggression and the emergence of violent suicidal ideation during treatment of various psychiatric disorders. See Wiseman, *The Myth of The Moral Brain: The Limits of Moral Enhancement*, 93–106.

<sup>17</sup> John Shook, 'Neuroethics and the Possible Types of Moral Enhancement', *AJOB Neuroscience* 3:4 (2012), 11.

<sup>18</sup> A similar criticism can be found in John Harris, *How to Be Good* (Oxford: Oxford University Press, 2016).

<sup>19</sup> See Jona Specker, et al., 'The Ethical Desirability of Moral Bioenhancement: a Review of Reasons', *BMC Medical Ethics* 15:67 (2014): <http://doi.org/10.1186/1472-6939-15-67>.

focus on and limit itself to treating mental disorders because 1) we already have means that have been proven effective, and 2) through treatment of disorders such as addiction or illnesses caused by injuries we have an improvement of moral behaviour. Proposals like that of Persson and Savulescu are proven to be sterile science fiction instead, because they are neither practically feasible nor desirable.

### **3. The Instrumentality of the Hard Sciences in Dewey's Pragmatism**

Persson and Savulescu claim human nature to be flawed because of an evolutionary lag: the brain and the genes inherited from our ancestors cause intuitions and moral dispositions that are incompatible with the destructive potential of modern technology. Traditional methods of moral education are not enough for the efficacy of political and social reforms; a biomedical intervention is needed to change those intuitions and dispositions so that we are 'more often, perhaps always, causally determined to do what we take to be good'. Gene alteration and hormone manipulation must provide a certain type of good behaviour.

As I tried to show in the previous section, such an approach poses a series of problems that are typical when we try to manipulate behaviour with hard science. The source of these problems is not recognising that the nature of moral agents is formed on several levels that cannot be broached through biology alone. On the other hand, it is also true that modern society needs better people and we realise this not only from those phenomena listed by Persson and Savulescu, but also from increasing instances of cyber bullying and other examples of intolerance.

Moral pedagogy seems to be outdated, or at least not sufficiently effective to face the struggles of our society; but it is one thing to say that moral pedagogy is ineffective, and quite another to claim that it is ineffective because of our biological nature. Perhaps moral pedagogy should be restructured, and perhaps the neurosciences could be useful in developing a new type of intervention, though not in a reductionist sense. Maybe, if we want to develop an alternative approach that could avoid the collateral effects of moral enhancement, what we need is a different concept of human nature and of the role of science, a concept that is naturalistic but pluralistic at the same time. I believe that Dewey's pragmatism offers such a concept.

Dewey's analysis of human nature starts from categories that refer to the theory of evolution: mutation, transition, instability, contingency,



and adjustment. These categories derive from the experience of constant renewal that any living being undergoes to overcome external obstacles; biological functions developed through time, high faculties, and conceptual systems are merely instruments to enhance the adaptability potential. In particular, thought is a function that allows us to ‘use things as means to affect other things’<sup>20</sup> and ‘occurs only in situations qualified by uncertainty, alternatives, questioning, search, hypotheses, tentative trials or experiments’.<sup>21</sup> The whole process is interactive rather than contemplative, wherein human beings make decisions and explore the unknown; they constantly try to gain a better understanding of the environment around them to adapt themselves to it or *vice versa*. For this reason, the objects of perceptions, emotions, aesthetic experience, scientific research, and social relations are all to be considered as real and natural: they are something we deal with daily and that we need to face problems. Määttänen defines those objects as ‘interactionables’ by distinguishing them from the ‘uninteractionables’, objects that for the moment do not fall into operational practice and that are not to be considered as objects of knowledge or of nature.<sup>22</sup>

When outlining his naturalistic ontology Dewey recognises the multiplicity of sources of problems for human life, and because of this he strongly opposes the scientific reductionism that denies the importance of qualitative experience and considers mathematical entities to be the only existing ones. Objects of scientific research are, indeed, ‘reached by a method which controls them and which adds greater control to life itself, a method which mitigates accident, turns contingency to account, and releases thought and other forms of endeavour’, but this does not mean that these objects are ontologically paramount.<sup>23</sup> The idea that ‘science is the grasp of reality in its final self-sufficing form’ needs to be abandoned,<sup>24</sup> because the ‘objects of science, like the direct objects of the arts, are an order of relations which serve as tools to effect immediate havings and beings’.<sup>25</sup> To treat objects as tools means that ‘their value and validity

<sup>20</sup> John Dewey, *Experience and Nature* (London: Allen & Unwin, 1925), 158.

<sup>21</sup> Dewey, *Experience and Nature*, 68.

<sup>22</sup> See Pentti Määttänen, *Mind in Action: Experience and Embodied Cognition in Pragmatism* (Cham, Heidelberg, New York, Dordrecht, and London: Springer, 2015), 80.

<sup>23</sup> Dewey, *Experience and Nature*, 70.

<sup>24</sup> Dewey, *Experience and Nature*, 135.

<sup>25</sup> Dewey, *Experience and Nature*, 136.

reside in what proceeds from them; consequences not antecedents supply meaning and verity. Truths already possessed may have practical or moral certainty, but logically they never lose a hypothetical quality'.<sup>26</sup>

In saying this Dewey accomplishes two things: firstly, he outlines a fallibilistic conception of science, because the instrumental character of theories and the transactional contest of life make it impossible for a theory to be in principle immune to revision. Secondly, the principle according to which the value and truth of tools 'reside in what proceeds from them' works against reductionism as a justification of the validity of the humanities. Most of the problems I addressed when talking about Persson and Savulescu's theories originate from consequences we would have in using modern genetics and neuroscience to control moral behaviour, namely the creation of moral automata. Using the hard sciences to manipulate moral conduct is like using a pneumatic drill to sculpt Michelangelo's *Pieta*. Dewey claims that experience does not prescribe reductionism as a method, contrary to what physicalists would want. On the contrary, experience shows that different tools develop to solve different problems. Physics, medicine, economics, politics, ethics, and sociology all have their fields of application and cannot substitute each other, but this does not mean they cannot communicate with each other.<sup>27</sup> Phenomena and objects of human life are not strictly divided into metaphysical categories,<sup>28</sup> but exist within a continuum that can be approached by different perspectives. Disciplines such as modern neuropsychology, for example, try to find correlations between neurological stimulation, cortical injuries, fMRI scans, and behaviour; i.e., they develop new tools that do not reduce the complexity of the phenomenon but add a point of view to be used to obtain a better comprehension.

To sum up, Dewey's instrumentalism offers an answer to the debate that divides scientists and anti-naturalists by considering hard scientific ontology as only part of nature on one hand, and

<sup>26</sup> Dewey, *Experience and Nature*, 154.

<sup>27</sup> Similar arguments can be found in Mario De Caro and David Macarthur (eds), *Naturalism in Question* (Cambridge: Harvard University Press, 2004), 21–58.

<sup>28</sup> 'If the general traits of nature existed in water-tight compartments, it might be enough to sort out the objects and interests of experience among them. But they are actually so intimately intermixed that all important issues are concerned with their degrees and the ratios they sustain to one another'. Dewey, *Experience and Nature*, 413.

refusing the supernatural characterisation of rationality, mind, and agency on the other, putting the latter in a biological substrate. These considerations have strong implications for ethics, as they are directed to the natural condition of the human being – a form of life subjected to transition and contingency – and allow us to enrich our concept of moral pedagogy.

### 4. Ethics, Habit, and Human Nature

Consistent with the assumptions of Dewey's naturalism, the guiding principle of any moral enhancement project should be the transactional relationship between organism and environment. Moral behaviour cannot be reduced to a simple product of neurons and genes, but requires a holistic conception of the person and his or her functioning in a given context. Dewey offers such a conception in *Human Nature and Conduct*, introducing the fundamental notion of "habit":

[H]abits are ways of using and incorporating the environment in which the latter has its say as surely as the former. [...] They involve skill of sensory and motor organs, cunning or craft, and objective materials. They assimilate objective energies, and eventuate in command of environment. They require order, discipline, and manifest technique. They have a beginning, middle and end. Each stage marks progress in dealing with materials and tools, advance in converting material to active use.<sup>29</sup>

Dewey configures habit as an active model of response to the environment which implies the co-ordinated use of external materials, physical organs, and the mental faculties of the individual. In short, it is a solution that the psychophysical unit has repeatedly adopted to confront necessity and that has been transformed into a stable aspect of character. Such habits 'persist until the environment obstinately rejects them [and] they perpetuate themselves, by acting unremittingly upon the native stock of activities; [they] stimulate, inhibit, intensify, weaken, select, concentrate and organize the latter into their own likeness'.<sup>30</sup> In other words, habits influence our perceptions, our thoughts, and our actions so much as to become unreflective when the environment does not resist them. On the other hand, when a habit

<sup>29</sup> John Dewey, *Human Nature and Conduct: An Introduction to Social Psychology* (New York: Henry Holt & Co., 1922), 15.

<sup>30</sup> Dewey, *Human Nature and Conduct*, 125.

seems insufficient to solve a problem, the blind force of impulse emerges to signal the need to readapt. At that moment, either the impulse manages to unload, thanks to an immediate solution, or thought emerges and deliberation is necessary.

Dewey describes deliberation as a moment of stasis in which the subject has to assume and assess the consequences of various possible actions. At this juncture, engrained habits and conflicting desires are reconfigured according to external conditions by anticipating possible results until one element prevails over the others. Here it is important to stress the importance of the practice of intelligent thinking and imagination, because 'only thought notes obstructions, invents tools, conceives aims, directs technique, and thus converts impulse into an art which lives in objects'.<sup>31</sup> More specifically, Dewey believes intelligence to be the function that 'converts desire into plans, systematic plans based on assembling facts, reporting events as they happen, keeping tab on them and analyzing them'.<sup>32</sup>

However, this process is not automatic: certain habits, desires, and impulses can be so strong that they make an individual blind to any alternative, leading to routine conduct. As a result, the ability of the mind to explore possible alternatives, to question old ideas, to transform the driving force of impulses into a constructive force, is also a habit that needs to be acquired and strengthened. It is no coincidence that Dewey's educational programme targets the cultivation of a plastic individual, that of a person who is not stuck in old habits but ready to question himself or herself, and to broaden his or her view of the world by communicating with others.<sup>33</sup>

We must now consider how ethics is connected with the nature of habits and our problem-solving ability. First, Dewey underlines that moral principles and moral dispositions are acquired, and not innate. Our biology gives us instincts but it is in the interaction with the social environment that those instincts are reconstructed into moral

<sup>31</sup> Dewey, *Human Nature and Conduct*, 171.

<sup>32</sup> Dewey, *Human Nature and Conduct*, 255.

<sup>33</sup> 'Power to grow depends upon need for others and plasticity. Both of these conditions are at their height in childhood and youth. Plasticity or the power to learn from experience means the formation of habits. Habits give control over the environment, power to utilize it for human purposes. [...] Active habits involve thought, invention, and initiative in applying capacities to new aims. They are opposed to routine which marks an arrest of growth. Since growth is the characteristic of life, education is all one with growing; it has no end beyond itself'. John Dewey, *Democracy and Education: An Introduction to Philosophy of Education* (New York: The Macmillan Company, 1916), 62.

dispositions. When we notice a pattern of those dispositions in different cultures, it is not determined by something innate, but by individuals facing the same situation and reacting in like fashion. The persistency of customs (social habits) is explained as individuals ‘forming their personal habits under conditions set by prior customs. An individual usually acquires the morality as he inherits the speech of his social group’.<sup>34</sup> But acquired morality is not a fixed achievement. Morality in the largest sense is a continuing process since contexts and problems always change and we will sooner or later need to find new solutions to them. In Dewey’s words, ‘morality is education’, an ‘expansion in meaning which is consequent upon observations of the conditions and outcome of conduct’.<sup>35</sup>

It is not a coincidence that the word “education” has appeared at this point. Dewey is convinced that if ‘the standard of morals is low it is because the education given by the interaction of the individual with his social environment is defective’,<sup>36</sup> where improving the interaction of the individual with his social environment means to ‘correct errors and satisfy deficiencies which are perceived as man deals with social situations, as well as to resolve conflicts which occur among the component elements of society’.<sup>37</sup> Ethics is not concerned with an absolute good to which humanity must adapt. Ethics is the tool addressing problems that arise when the consequences of our actions affect others. Life in a society offers unlimited occasions for conflict between several normative instances, desires, and characters, and the purpose of moral theory is indeed to handle those conflicts. In summary, it comes down to recognising the social sources of normativity and – through critical analysis and experimental practices – finding solutions that encourage mediation and co-ordination of both the individual and the community.

To succeed in such a venture clearly requires integration of several factors. Mental faculties and biological assets need to be guided by intelligent thinking: but intelligent thinking is a habit that needs to be acquired and harmonised with the other habits constituting one’s character. Then we have environmental influences, social customs, and institutions which heavily influence the formation of character and conduct, so a huge effort needs to be directed to creating a context that would not interfere with the development of good dispositions.

<sup>34</sup> Dewey, *Human Nature and Conduct*, 58.

<sup>35</sup> Dewey, *Human Nature and Conduct*, 280.

<sup>36</sup> Dewey, *Human Nature and Conduct*, 319.

<sup>37</sup> John Dewey, *Lectures in China: 1919–1920* (Honolulu: University Press of Hawaii, 1973), 64.

In general, any type of intervention should be directed to the development of plasticity of habits, because thanks to plasticity the individual can give new meaning to what he experiences, create assumptions and new action plans: plasticity is the key to adapting to the environment and, at the same time, to adapting the environment to our needs.

The problem with configuring genetics and neuroscience as tools to induce some kind of moral behaviour lies in not considering the adaptive character of plasticity. Whenever we talk about altering genes or giving hormones, the objective of radical naturalists is often to determine a specific behavioural change through a process of cause and effect. However, this means setting unilateral constraints on conduct that could turn unfavourable in some situations. Oxytocin and serotonin may alter responses in trial subjects, but do not directly create values or enhance our ability to interpret the context. Values and interpretative abilities require a plastic individual that can build up material from his or her lived experience, ponder on the consequences of his actions, and change his or her plans.

## **5. Neuroscience and Moral Pedagogy**

In the light of the above, Persson and Savulescu's moral bio-enhancement does not seem a practicable or a desirable solution, and I cannot consider here further critical issues related to a paternalistic imposition of such enhancement.<sup>38</sup> However, even though I criticise the *pars construens* of *Unfit for the Future*, the relation between humankind and environment is indeed defective. The balance of power on which traditions of political realism and international law rely, the inequities created thanks to a *laissez-faire* economic logic, and the lack of ecologically sustainable consumerism show that the present relationship between humankind and the environment is leading to disaster.

In the past Dewey raised some problems of liberalism<sup>39</sup> and suggested that the solution lay in the education of the citizen and the formation of a 'public'.<sup>40</sup> According to him, the moral development of

<sup>38</sup> See Ingmar Persson and Julian Savulescu, 'Response: Should Moral Bioenhancement Be Compulsory? Reply to Vojin Rakić', *J Med Ethics* **40**:4 (2014), 251–252.

<sup>39</sup> See for example John Dewey, *Liberalism and Social Action* (New York: G.P. Putnam, 1935) and John Dewey, *Lectures in China: 1919–1920*, 107–116.

<sup>40</sup> See John Dewey, *The Public and Its Problems: An Essay in Political Inquiry* (New York: Henry Holt & Co., 1927).

the child had to happen through deeply social education, connected with the needs identified outside the school environment:

[T]he school must itself be a community life in all which that implies. Social perceptions and interests can be developed only in a genuinely social medium – one where there is give and take in the building up of a common experience. [...] In place of a school set apart from life as a place for learning lessons, we have a miniature social group in which study and growth are incidents of present shared experience. Playgrounds, shops, workrooms, laboratories not only direct the natural active tendencies of youth, but they involve intercourse, communication, and cooperation, – all extending the perception of connections.<sup>41</sup>

Dewey thought moral enhancement to be feasible exclusively in a net of relationships that would allow individuals to improve their ‘social perceptions and interests’ thanks to the reconstruction of the meaning of personal experience. In other words, Dewey recognised moral issues to be far more than just biological problems. However, he was convinced that progress in ‘physiology, biology, and the logic of experimental science supply the specific intellectual instrumentalities’ demanded to work out and formulate ‘a theory of knowledge which sees in knowledge the method by which one experience is made available in giving direction and meaning to another’.<sup>42</sup>

Inspired by Dewey’s instrumentalism and psychology, my proposal refers to the concept of habit and focusses on the possible combination of neuroscience and moral pedagogy. I suggest that we use neuropsychology not to speculate on biomedical intervention, but to consider what type of activities may help us to improve both moral habits and the effectiveness of teaching. This approach – which would go side by side with the cure of “moral pathologies” mentioned by Specker and colleagues – is limited, because it aims to enhance the plasticity of the brain<sup>43</sup> and intelligent conduct and

<sup>41</sup> Dewey, *Democracy and Education*, 416.

<sup>42</sup> Dewey, *Democracy and Education*, 401.

<sup>43</sup> Current research in neuroscience is trying to find the mechanisms underlying so-called experience-dependent plasticity. This concept relies on the Hebbian theory that ‘neurons that regularly fire together, wire together’ and holds that the grey matter volume of a brain region is influenced by its use. For example, some longitudinal imaging studies show that juggling training leads to increased grey matter concentration in occipital-parietal regions; whereas training of working memory impacts on the structural connectivity of white matter – for a review see Robert J. Zatorre, Douglas R. Fields, and Heidi Johansen-Berg, ‘Plasticity in Gray and White:

not to produce specific behaviours. However, contrary to moral enhancement, it can be safely tested and does not have the side effects I mentioned in section 2.

Such a project is being pursued by Darcia Narvaez, a researcher at the University of Notre Dame. The starting point of her study is a clear rejection of genetic determinism and of mind/body dualism, which are replaced by an epigenetic perspective in which the gene expression and the development of functions are largely modulated by interaction with the environment. Given this premise, Narvaez's concern is the context in which a child grows up, since the first years of life are those that provide 'the foundations for what is to come in terms of social, intellectual and moral development'.<sup>44</sup> Some examples? Already during pregnancy, a severely anxious mother produces cortisol discharges that may affect the extra-pyr- amidal system and the lower limbic areas. These areas are believed to be related to threat perception, stress response and the "fight or flight" type of response mechanism; their dysfunction would have implications on affiliative abilities and pro-social behaviour, i.e., the environment coming to be perceived as a perennial threat. Moreover, a low level of parental care seems to affect the greater limbic system and frontal cortices by altering, again, the ability to forge affiliative links – the oxytocin circuit – as well as abstract reasoning skills which are necessary to imagine behavioural alternatives and related consequences.

The possibilities of intervention at this primitive level, according to Narvaez, are varied and do not require medicines, engineering, or systems: to promote the moral development of the child – regulation of behaviour and affiliation – breast-feeding is particularly recommended, as well as administration of positive tactile stimuli by the mother-play, the presence of several support figures, and shared rest. Narvaez's model of moral neuro-education also does not require

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Neuroimaging Changes in Brain Structure During Learning', *Nature Neuroscience* **15**:4 (2012), 528–531. Regarding moral education, a finding that would need further exploration is the increased grey matter volume in the bilateral ventromedial pre-frontal cortex (vmPFC) and subgenual anterior cingulate cortex (sgACC) of those subjects that 'judge moral issues based on deeper principles and shared ideals' – for the experiment, see Kristin Prehn, et al., 'Neural Correlates of Post-Conventional Moral Reasoning: A Voxel-Based Morphometry Study', *PLoS ONE* **10**:6 (2015): <https://doi.org/10.1371/journal.pone.0122914>.

<sup>44</sup> Darcia Narvaez, 'Moral Neuroeducation From Early Life Through the Lifespan', *Neuroethics* **5**:2 (2012), 145–157, 146.



medication or systems, with the double objective of 1) promoting moral virtue in ourselves and in young people, and 2) modifying a ‘malfunctioning brain through a change in activities which modify neuronal functioning’.<sup>45</sup> This model pairs with what Narvaez calls Integrative Ethical Education<sup>46</sup> and proposes to intervene on conduct – and the neural basis involved – through various types of activities. The idea would be to build scenarios where individuals, supervised by a mentor, test their moral intuitions, their skills, and their habits, constantly facing new problems and discussing possible solutions. This practice, designed to stimulate the plasticity of brain and moral reasoning, is integrated with recreational activities (singing, dancing, writing, artistic games) and the technique of ‘mindfulness’,<sup>47</sup> widely used in psychotherapy nowadays. With the former techniques we try to (re)vitalise the emotional areas of the brain, while the latter focusses its attention on the present moment by increasing the levels of concentration and the ability to analyse the context.

<sup>45</sup> Narvaez, ‘Moral Neuroeducation From Early Life Through the Lifespan’, 149.

<sup>46</sup> This approach aims to combine the advantages of two pedagogical guidelines: one founded on the ethics of virtue – a character ethics approach – and one based on the deontological ethics – a rule ethics approach. The first aims at the formation of a virtuous character through the transmission of a set of values: discipline, self-control, and co-operation to mention just some. The educator does not have an equal relationship with the child and transmits knowledge with a top-down pedagogy. Instead, the pedagogy that refers to deontological ethics emphasises the individual’s ability of moral reasoning. Here every norm is validated through the principle of universalisation and the child is guided towards a progressive autonomous judgement. See Darcia Narvaez, ‘Integrative Ethical Education’, in M. Killen and J. G. Smetana (eds), *Handbook of Moral Development* (Mahwah, NJ: Lawrence Erlbaum Associates, 2006), 703–733.

<sup>47</sup> A study conducted in Massachusetts shows that an eight-week mindfulness-based stress reduction training produced an increase in grey matter concentration within the left hippocampus, in the posterior cingulate cortex (PCC), in the left temporo-parietal junction (TJP), and in the cerebellum. TJP is involved in social cognition and shows great activation during feeling of compassion in meditators. The hippocampus contributes to the regulation of emotion and it is involved in the modulation of cortical arousal and responsiveness; according to researchers, ‘the structural changes in this area following mindfulness practice may reflect improved function in regulating emotional responding’, see Britta K. Hölzel, et al., ‘Mindfulness Practice Leads to Increases in Regional Brain Gray Matter Density’, *Psychiatry Research: Neuroimaging* **191**:1 (2011), 36–43, 40.

If this model proves to be effective, it would require interventions at a political and social level in order to build a supportive environment. Given the large amount of interdisciplinary data that correlates poor parental care with brain dysfunction and behavioural problems, Narvaez suggests the establishment of policies that take parenting into great consideration: we might think of an education programme for parents, a measure that has been requested for a long time by sociologists and psychologists.<sup>48</sup> We should also contemplate a policy promoting the support of children and families, and reconstruction of societies and institutions to create a safe and less stressful context for pregnant women.

It can be argued that Narvaez's project is not particularly revolutionary, because many of its aspects are already known by common-sense and developmental psychology. One might note, moreover, that I prefer this approach because of an *a priori* objection to more invasive methods. To the first, I would respond by saying that Narvaez's non-reductionist use of neuroscience makes it possible to configure new types of intervention, namely, new kinds of activities that can be tested to influence the biological basis of the cognitive and emotional system more effectively.<sup>49</sup> Common-sense and developmental psychology were probably on the right track, but it is with neuroscience that they gain new strength: the strength to enrich previous knowledge to create new tools; the strength to enhance moral education. But this does not mean that we can solve moral problems once and for all. If we want to respect the contextual, social, and experimental nature of morality, no miraculous revolution can be expected.

Regarding procedures being more or less invasive, it is not the electrode or the drug that is evil; rather, the problem is whether these electrodes and drugs are capable of promoting plasticity of the brain and moral habits. If an implant or a drug enhances my empathy in every situation, this is of no help to practical life and does not produce an increase in meaning, which is useful for deliberations. If a genetic intervention allows me to have the best moral intuitions in a given context, as this context changes I may find myself at a

<sup>48</sup> See for example M. W. Berkowitz and J. H. Grych, 'Fostering Goodness: Teaching Parents to Facilitate Children's Moral Development', *Journal of Moral Education* 27:3 (1998), 371–391.

<sup>49</sup> On the importance of establishing relationships between MRI-based effects, neuroanatomy, and behaviour, see Zatorre, Douglas, and Johansen-Berg, 'Plasticity in Gray and White: Neuroimaging Changes in Brain Structure During Learning', 530.

disadvantage in facing new problems.<sup>50</sup> The biomedical interventions we have at our disposal today are not suitable to create plastic moral disposition, nor can they help us to better understand moral contexts: they often influence behaviour by overlooking practical rationality. Darcia Narvaez's project, on the other hand, uses modern knowledge to experiment on the correlation between certain practices and the development of cerebral areas involved with them. This type of research may represent the most feasible solution, in the short term, to promote a reform in education and society that would ease the growth of a democratic electorate and of a public that is more aware of environmental decline, of weapons of mass destruction, and of lawless liberalism.

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<sup>50</sup> Interestingly, this is the same problem Persson and Savulescu want to solve with enhancement: the context has changed, but humanity has underdeveloped moral intuitions that must be rewritten.