

# Pedagogy in the face of the Promethean gap in transhumanism<sup>1</sup>

## La Pedagogía ante el desfase prometeico del transhumanismo

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### **Abstract**

**Introduction:** NBIC technologies (nanotechnologies, biotechnologies, information technologies and cognitive sciences) are promoting the perspectives of transhumanism and posthumanism and represent a real challenge for Pedagogy, especially in their anthropological status. We therefore need to reflect on what anthropological approach is assumed in Pedagogy that facilitates understanding the moral dimension that the notion of human improvement contains. **Methodology:** hermeneutical critical analysis with theoretical-pedagogical projection of the bibliography linked to the research object. **Discussion:** the article critically discusses three pitfalls of the transhumanist approach applied to education: all human enhancement technologies are equal; an educated subject is the one with more and better memory, attention or reasoning; and, finally, to educate is to help someone to avoid efforts. **Results:** the idea of human development is impoverished and misrepresented if we only assume it as a project of technological dominance. We must reject, from pedagogy, the theses

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that seek to distance us from the perspective of human formation as an intrinsic good, mistakenly considering the use of the media irrelevant when they are what really allow human formation. Conclusion: pedagogues must combat the idea that the possibilities of education, of the improvement of human development, do not increase by blurring, canceling, or discarding the human condition. We must develop a theory of educational losses or traps caused by transhumanism.

*Key words:* transhumanism, posthumanism, education, enhancement, biotechnology.

### **Resumen**

**Introducción:** las tecnologías NBIC (nanotecnologías, biotecnologías, tecnologías de la información y las ciencias cognitivas) están impulsando las perspectivas del transhumanismo y del posthumanismo y suponen un auténtico desafío para la Pedagogía especialmente en su estatuto antropológico. Necesitamos, pues, reflexionar sobre qué enfoque antropológico se asume en la Pedagogía que facilite comprender la dimensión moral que encierra la noción de mejora humana. **Metodología:** análisis crítico hermenéutico con proyección teórico-pedagógica de la bibliografía vinculada al objeto de investigación. **Discusión:** el artículo discute críticamente tres trampas del enfoque transhumanista aplicado a la educación: todas las tecnologías del mejoramiento humano son iguales; un sujeto educado es el que tiene más y mejor memoria, atención o razonamiento; y, por último, educar es ayudar a alguien para evitarle esfuerzos. **Resultados:** la idea de desarrollo humano se empobrece y tergiversa si solamente la asumimos como un proyecto de dominio tecnológico. Debemos rechazar, desde la pedagogía, las tesis que pretenden alejarnos de la perspectiva de la formación humana como un bien intrínseco considerando erróneamente irrelevante el uso de los medios cuando son los que permiten realmente la formación humana. **Conclusión:** los pedagogos debemos combatir la idea de que las posibilidades de la educación, del mejoramiento del desarrollo humano, no aumentan por desdibujar, anular o descartar la condición humana. Debemos ir elaborando una teoría de las pérdidas o trampas educativas que provoca el transhumanismo.

*Palabras Clave:* transhumanismo, posthumanismo, educación, mejoramiento, biotecnología.

## Introduction

In his book *To save everything, click here: the folly of technological solutionism* (2016) Morozov reports that companies in the USA, China, and Japan can now completely design a kitchen with the latest technology, capable of monitoring the preparation of any dish with visual, sonic, and temperature measuring devices. Once the data have been entered and using the corresponding algorithm, a voice with an augmented image – previously selected according to the customer's preferences, of course – guides you so that you avoid any errors and can make a *perfect meal*.

Before the pandemic, once or twice a month on a Sunday, my family would gather together to eat. One of the most entertaining moments was always the debate about how my brother in law Antonio's omelette had turned out, because who wants a perfect potato omelette? Indeed, what is a perfect potato omelette? What we actually wanted every Sunday was Antonio's omelette. Among other interesting observations, Morozov notes that:

Silicon Valley's quest to fit us all into a digital straightjacket by promoting efficiency, transparency, certitude, and perfection (...) will prove to be prohibitively expensive in the long run. (...) Imperfection, ambiguity, opacity, disorder, and the opportunity to err, to sin, to do the wrong thing: all of these are constitutive of human freedom, and any concentrated attempt to root them out will root out that freedom as well. (p. xiii and xiv)

The aim of this article is to show that the central idea of education as human development relies on emphasising individuals' hard-working, exacting, and persistent involvement in their own learning more than an artificial improvement of oneself. This argument implies the following corollaries: firstly, that educating oneself involves striving to change for the better, that is to say, education entails helping people to want and make desirable personal and social changes; secondly, that it is only through a dedicated effort to change for the better that we can discover the limits of each of us, in other words, educating also means helping to embrace and accept one's own limitations; and, finally, that disregarding this dedicated effort to change for the better can prevent us from discovering our possibilities and limits, that is to say, our particular potato omelette, that which ultimately makes us unique.

The omelette is, of course, of little importance as it will depend on each individual's preferences. But what would be our position if we could

have perfect children? What would we think faced with the possibility of adding prostheses to our bodies so we could run faster, jump higher, be more flexible, see better, prevent our hips or other bones from breaking? And, above all, as educationalists, what do we think about the use of neuropharmacological implants to improve people's memory, concrete and abstract reasoning, moral decisions, or verbal capacity? Pharmaceutical research into treating mental illnesses and cognitive deterioration does not seem unusual to us; what is novel is the use of what are known as NBIC technologies (nanotechnology, biotechnology, information technology, and cognitive sciences) to direct this research towards improving the mental and moral capacities of people who have good mental health.

Whatever position we take, nobody can deny that these technologies effect multiple fields and present a challenge for understanding the human being in more depth. Technologies that have, as is well-known, encouraged posthumanist and transhumanist perspectives and present a real challenge for pedagogy, especially in its anthropological status. Indeed, these currents “contain a number of ‘postanthropological’ questions that are far from techno-utopian or -dystopian, but instead involve an entirely new understanding of the relationship between education, technology and the human” (Herbrechter, 2018). Savulescu (2016), one of the best-known supporters of transhumanism, asks: “What is the moral difference between producing a smarter child by immersing that child in a stimulating environment, giving the child a drug, or directly altering the child's brain or genes?”. On the same lines, Kayali and Clarke (2020, p. 252) conclude their text on moral education and biological improvement with this thought-provoking question: “In other words, do means matter?” (2020, p. 252). As we will show, not only do they matter, but the choice of means decides whether something is or is not education.

A few years ago, Vilanou (2015, p. 212, own translation) used an expression by Gilles Ferry to remind us of the death of pedagogy: “In other words: the death of metaphysics – which implied the death of man, understood as the child of God – involved the death of pedagogy, a discipline now condemned to a residual place in the postmodern world”. However, I believe that for some people, another death of pedagogy might be brewing, albeit not through metaphysical paths this time but rather through NBIC technologies. For this reason, Herbrechter (2018) believes

that “Education may be committing suicide.” Tillson and Aldridge, in turn, state that “in discussions of educational enhancement, it is common for education to be regarded highly instrumentally and, furthermore, as a relatively inefficient tool that is likely to become outmoded with no loss” (2018, p. 589). Some authors are starting to discuss the need to use genetics to promote “precision education” (Martschenko, 2020a, p. 34) as they warn us that “the biosocial train is in route (...) the reorientation to biological and physiological processes opens new avenues for education researchers” (Martschenko, 2020b, p. 8 and 7).

How, in pedagogy, are we to confront the desire for precision and perfection that these technologies offer, which will clearly continue to grow? In particular, how can we confront the Promethean gap between what we can do and what we should do (Anders, 2011), between pressing the button for the potato omelette or turning it off, between working with perfect pupils or with the ones we have, between choosing a perfect child or accepting the one who comes?

The matters set out about could be stated in a number of questions: How can the rules of the human be pedagogically reformulated through converging technologies? What image should we, in faculties of education, transmit to our students about what the human being is (García del Dujo *et al.*, 2021; Quintanilla, 2019)? Ultimately, what pedagogical implications do biological understandings of the human have? All of these questions are highly relevant for pedagogy because “the human being is an animal that rejects its own condition as such” (Gabriel, 2019, p. 24).

The argument I put forward is that we need to reflect on what anthropological focus pedagogy should adopt to facilitate comprehension of the moral dimension encapsulated by the notion of human improvement. In particular, as educationalists, we must combat the increasingly widespread idea that the possibilities of education, of improving human development, are not increased by clouding, abolishing, or dismissing the human condition. Removing the white lines does not make us park better. Eliminating the force of gravity would not make us walk better and, as Kant (1978) taught us, birds could not fly without the resistance of the air. Ultimately, we do not increase the potential of education, of being more human and better people, by believing that we can omnipotently control the starting conditions of this humanity. Perhaps what has happened is that, as Luri (2019) argues, “technological innovations have enabled the

sense of the possible to grow at the expense of the sense of the real in the conscience of citizens” (p. 187, own translation).

## Transhumanism in education

Transhumanism can be understood as a way of redesigning the human condition by improving our physical, emotional, and cognitive capacities through the use of NBIC technologies (Tirosh-Samuels, 2018). The last point of the “*Transhumanist Declaration*” (various authors, 2009), which numerous renowned scientists and technology companies signed, states:

We favour allowing individuals wide personal choice over how they enable their lives. This includes use of techniques that may be developed to assist memory, concentration, and mental energy; life extension therapies; reproductive choice technologies; cryonics procedures; and many other possible human modification and enhancement technologies (Point 8).

The aim of transhumanism is, ultimately, “to improve human beings technologically as individuals and as a society by means of manipulating them as a biological species, on the basis that this improvement would be *intrinsically good, desirable, and inalienable*” (Hernández, 2009, p. 578; emphasis in original, own translation). “Such manipulation is equivalent to *cyborganisation*, hybridisation of the organic and the synthetic, of man and machine aimed at neutralising the flaws that limit and torment us” (Martorell, 2012, p. 491; emphasis in original, own translation). “Put differently, transhumanism is the programme that will bring about techno-scientific posthumanism, the desired telos” (Tirosh-Samuels, 2018; Bostrom, 2003) and which, specifically, asserts “morphological liberty”, that is, “the capacity to alter the form of the body at will through technologies such as surgery, genetic engineering, nanotechnology, or mind uploading” (Rueda Etxeberria, 2020, p. 316, own translation; More, 2013; Haraway, 2020).

This point is where I wish to focus my attention: I fear that characteristics and conditions that are an inescapable part of the particular and singular form of human development might in future be regarded as “flaws that limit and torment us”. According to the dictionary of the Royal Academy of the Spanish Language, ‘tacha’ (flaw), in the first definition, means: “Fault, note or defect in a thing that makes it imperfect”. Is ageing an imperfection? Is it a flaw that we cannot recall things as well as a machine?

Would having to make an effort to learn be an embarrassing limitation if we could turn to cerebral implants? Alexandre (2017) claims that “by 2100, allowing children with an IQ below 160 to be born would seem as outlandish as consciously bringing a baby with Down’s syndrome into the world seems to us today” (cited in Contreras, 2019, own translation).

In contrast, I believe that

The human condition, of course, is not free from faults and deficiencies: illness and pain are a part of it. They affect our existence and deny us the normal use of our bodies. But transhumanism does not start from an interest in health: instead, it regards the perfectly healthy human body as defective, as insufficient. (...). Transhumanism has a totally different aim: it does not set out to repair the human body but to replace it. (Bellamy, 2020, p. 87, own translation)

This article is part of what has been called the bio-conservative – not bio-Luddite – perspective on transhumanism, which considers it necessary to start from a position that recognises and respects the human condition and centres on determining what type of improvements are ethically – or in this case pedagogically – acceptable, as it may be, as noted by important authors such as Fukuyama (2002), Sandel (2015), or Habermas (2012), that the type of optimisation and improvement desired will strip the human condition of its basic attributes of freely assuming responsibilities and taking a position with regards to life, in other words, the particular conditions of our educability. For example, for the human condition, is it the same for a prisoner to change his or her moral standards as a result of a freely adopted idea as it is to give him or her citalopram – an antidepressant that by increasing serotonin levels improves the moral valuation of the harm caused to others (Serra, 2016, p. 179)? Is there no anthropologically decisive gain in the effort one makes every day to maintain a relationship with others that generates joy and enthusiasm with life compared with achieving the same through pharmaceuticals or a few drinks?

Not everyone who approaches the ideas of strong transhumanism from the pedagogical perspective accepts the educational interest of these questions. For example, for Peres Díaz (2016)

we already use technology for humanist aims, and education pursues this very end; there would be no difference between what we do now and what we would do if we applied NBIC technologies in the future, as these and

education, which is the current way in which human societies seek “human improvement”, have the same end. (p. 130, own translation)

Some very influential and internationally recognised authors who work on this topic, such as Bostrom and Sandberg, even consider that taking medication is “looked down on”, it has side effects and, in some cases, there can be problems acquiring it, “but genetic modification would make the individual independent of an external drug supply and would guarantee that the substances end up in the right place” (2009, p. 319). When analysing the possible risks of physical intervention on the brain or genetic modification, they argue that “even education is a risky enhancement method. Education can enhance cognitive skills and capacities, but it can also create fanatics, dogmatists, sophistic arguers, skilled rationalizers, cynical manipulators, and indoctrinated, prejudiced, confused, or selfishly calculating minds” (p. 322). Finally, these authors consider that to normalise any type of advance in cognitive and moral improvement of individuals, above all it is necessary to set in motion a series of strategies to extend their cultural acceptance as soon as possible. Among these, they suggest including improvements in the professional efficacy of certain sectors, which would increase economic income compared with the competition as “many people would prefer to fly with airlines or go to hospitals where the personnel take alertness-enhancing drugs” (p. 328; Savulescu, 2012; Savulescu *et al.*, 2011; Persson, & Savulescu, 2014; Sloterdijk, 2006; Singer, 2002).

It is also worth noting the existence of other very widespread approaches on similar lines, such as those of Braidotti, which are not so much interested in what can be achieved by physical, cognitive, or moral improvements but rather that what she calls a “nomadic concept of subjectivity” (2015, p. 229) should be culturally favoured to counterbalance the ideal of the liberal, individualist, natural, rational, and moral Vitruvian man, which defines human perfection in terms of autonomy and self-determination and with the aim of establishing a truth.

## Analysis and discussion: Cheating in education

Having set out our argument as well as a number of questions and positions in favour of transhumanism’s hardest approaches, we now analyse from a critical-pedagogical perspective in some detail what we



regard as *forms of cheating* that these trends might impose in educational thought and practice<sup>2</sup>. We will concern ourselves with identifying three possible forms of cheating, bearing in mind that they are not all equal, since in some cases, as we will see, they are limitations while in others they are disadvantages or are even inappropriate. What we cannot say is that transhumanism and its posthumanist approaches and consequences are a bluff or are simply a fashionable topic.

### **First type of cheating: all human improvement technologies are equal**

There is a self-interested levelling out or equalisation of all of the technologies – as we saw above in the case of Peres Díaz – which views them as equal to one another because they are technologies. One cause of this equalisation is what Stiegler (2002) – following Heidegger (1997) – calls “originary technicity”: we are prostheses as the human and the technical have never been separated, but instead have evolved jointly and inseparably, and so each era has to recognise its technological possibilities as part of its possibilities of humanisation. It is precisely because of this that the technology for making a perfect potato omelette is not the same as the technology for modifying the moral judgement of a prisoner. The historical tendency when analysing technology (Hansen, 2000) has been to view it as something external and dependent on the will of the subject, but NBIC technologies take “originary technology” theses to an extreme by showing us the possibilities of prostheses that are internal and cannot be controlled by the subject’s will, accentuating “the risks of robotisation of human subjectivity” (Fernández Agis, 2020, p. 241). We have therefore gone from shaping technology to being shaped by it. Accordingly, technologies are only comparable if we equalise them in their category of means. But they are not the same in how they help promote the human.

As Diéguez suggests, “we should not group improved cartilage together with an attempt to make some humans capable of photosynthesis, as Jaime de Foxá fantasised about in his novel *Marea verde* [Green tide]” (2018, p. 29, own translation). Therefore, it seems advisable to me to maintain

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<sup>2</sup> The idea of ‘cheating’ appears in the special edition of the journal *Educational Theory* dedicated to this matter in 2018 with the apt title: “*Cheating Education*”.

the distinction between humanising and dehumanising technologies. As Bertrand Russell himself who, of course, also lived through a time of intense scientific discoveries, noted in Faustian terms: “the pursuit of knowledge may become harmful unless it is combined with (...) a certain awareness of the ends of human life” (Russell, 1954).

Faced with how pedagogy might use advances in biotechnology, it is again worth recalling that education is essentially an ethical and political project (García Gutiérrez *et al.*, 2017). No technology – from the past or current ones – tells us anything about the ultimate reasons of education, that is to say, of the type of man or woman we aspire to become as educated subjects. Nor do they tell us anything about what is valuable as content to memorise, consider, and reflect on and, much less, anything about why it is valuable in itself to memorise, consider and reflect on this content as an end.

Insisting on this idea seems interesting to me because there is a trend, which has recently become especially accentuated, thanks to the development of neuroeducation (Pallarés-Domínguez, 2021; Cabanas Díaz & González-Lamas, 2021), that establishes as the basis of its knowledge a sort of direct correspondence between a detailed description of the structure of the capacities of individuals and the particular directions or senses in which we put into practice these capacities to achieve learning.

This is not how education works. Education, of course, starts from an understanding of the structure of the real that is as faithful as possible, but this structure does not establish a set of ends that are the only possible ones for human development. The most complete, thorough, and detailed understanding of the structure of reality and, therefore, of technologies will never give us all of its possible educational pathways or directions in a wholly closed form. Technical adaptation is a condition for application of the end, but it is not a condition for knowledge of the end as humanly desirable. Therefore, in education it cannot be held that biotechnological advances follow one path and the ends of education, or the models of man and woman follow the other. As Selwyn notes, “technology is not simply something with which humans work. On the contrary, technology is interwoven with policies that determine what education is, and what type of education we want for future societies” (2019, p. 131, own translation). Indeed, Floridi’s well-known *The Onlife Manifesto* (2015) stated that

ICTs are not mere tools but rather environmental forces that are increasingly affecting: 1. our self-conception (who we are); 2. our mutual interactions (how we socialise); 3. our conception of reality (our metaphysics); and 4. our interactions with reality (our agency) (p. 2).

With regards to this first form of cheating, in addition to what has already been said it is worth noting that progress does not just depend on the good that is in play but also that we are used to thinking, and this is also the case in education, that what is yet to come is always better than what we already have. Consequently, as Bellamy (2021) has observed, little by little a suspicion, a resentment, and a misgiving towards the present works its way into us and we come to perceive and experience it as a limit, a wound. The pioneer of nanotechnology Eric K. Drexler stated as long ago as 1997 that “if something has to change, I believe it will be for the better. To accept the contrary would be to fall into a radical and unsustainable ideology. Nowadays, what is truly conservative, even though it seems untrue, is to think about a continuous advancement of technology”. An advance under the law of accelerated performance will, according to Kurzweil (2013), lead humankind to the technological singularity, in other words, overcoming biological limits by converging with the artificial intelligence of machines.

The focus of post-critical pedagogy attempts to counter this tendency and others by emphasising the idea that if our principal critical perspective is the change that the future might bring us, we might find we lose the capacity to value the permanent and precious goods that form part of and surround our current life (Hodgson *et al.*, 2020). Markus Gabriel (2016), one of Germany’s best-known current philosophers similarly considers that

there is no pending utopia, an age after times that in principle would be better and more suited to promoting liberty than the one we find ourselves in; neither postmodernism nor posthumanism will better satisfy aspirations for liberty. (p. 289, own translation)

To conclude the analysis of this first form of cheating, we must also mention the tendency to conceal or downplay the negative effects of biotechnologies, in particular the use of deep brain stimulation (DBS) implants. Gallagher has compiled these effects. Among all of them, I would like to draw attention to one he describes as feelings of alienation: patients did not recognise themselves, they did not feel like they were themselves, they felt empty (Gallagher, 2018, pp. 633-634). Focquaert and

Schermer offer an explanation of great pedagogical interest. Among all of the possible techniques for improving the human being, these authors distinguish between direct passive interventions and indirect active ones. For them “direct, passive interventions may induce such radical and/or abrupt psychological changes, with little or no link to an individual’s narrative life story, that the continuity of one’s narrative identity is threatened. (...)”. They also note that “the possibility of concealed narrative identity changes, changes that, to a lesser or greater extent, go unnoticed or are denied by the individual undergoing the treatment may result in a situation of self-blindness” (2015, p. 149).

It is not only negative effects caused by implants that we must mention. Sometimes pharmaceuticals can cause cases such as one described by Agar (2015): after a woman was given medication to improve her degree of empathy, she was admitted to hospital where she had the idea of stealing a dialysis machine to sell it online and use the money she made to improve the quality of her son’s education.

In this way, a demand undoubtedly appears for responsibility as a condition for considering the consequences of applying new technologies, especially when these are always accompanied by an exaggerated optimism that calls for all manner of changes since, as we saw above, is sees them as being progress in themselves. Stiegler considers that “the development of digital medication has now become something very problematic, uncontrollable, and dangerous” (2015, p. 12, own translation). Hence the importance of recalling the words of Hans Jonas when he said “(p)utting it simply, it is a case of the rule that one must give more credit to catastrophic predictions than to optimistic ones” (Jonas, 1995, p. 71, own translation). And Anders, paraphrasing a very famous quotation of Marx, says: “it is no longer enough to change the world, what is more important than anything is to preserve it” (2009, p. 84, own translation).

## **Second form of cheating: educating people involves saving them effort**

Quite the contrary. Education is especially at play in the effort we make to improve our capacities. Seeing NBIC technologies as substitutes for education disregards the educational effect on our capacities and, above

all on how we make ourselves, our way of being, of work, study, sustained, tenacious, meticulous, even stubborn, effort that resists frustration.

As Castillejo put it in an apt expression: “We are what we are, we act in accordance with who we are and we make ourselves in accordance with how we act” (1981, p. 35, own translation). It is in this making of ourselves that our best identity is found. We are, above all, what we do, bit by bit, with our successes and failures, to be able to improve by ourselves and with the help of others. And this is what is truly great about education: its self-structuring power not just as a perfective end that we reach but as a means for our own human development. The act of persisting, the dedication, for example, with which an individual with serious impairments finally manages to eat with a knife and fork, contains the most magnificent pedagogical mission.

George Steiner in an interview with Laura Adler gave a real example of these ideas applied to himself:

The first few years of my life were very difficult because my arm was more or less attached to my body (...). There were shoes with zippers – very easy to put on. ‘No’, my mother said, ‘You’re going to learn how to tie your laces’. I can tell you, it was hard (...) and after six or seven months, I managed to tie my shoes. And my mother said, ‘You can write with your left hand’. I refused. Then she held my other hand behind my back, ‘You’re going to learn to write with your bad hand – yes you are’. And she taught me how. I was able to draw pictures and sketch with my left hand. It was a metaphysics of effort. It was a metaphysics of will, discipline, and especially happiness to see all that as a great privilege; and it continued throughout my life. (Steiner, 2016, pp. 11-12)

Could anyone doubt that this vital, continued, and determined, experience of effort, will, and discipline imprints character? As Aristotle taught us (1985, 1106a-1106b), virtues are not faculties but ways of being.

But there is still more. The sustained and determined effort we advocate for confronting our limitations and, when appropriate, overcoming them, should not be applied pedagogically only to what we like. The shaping force of the exercise of directing our will towards a goal does not, first of all, entail choosing an activity that is always pleasant. Instead, educators must often set learners challenges in directions other than their tastes. We are currently in a moment when some believe the curriculum and education in general should be limited to cultivating what children like – if it is cooking, take cooking, if it is painting take painting, etc. It is worth recalling the ever-intelligent thoughts of Alain:

I should now state that education should not be guided by the features of a vocation. First, because preferences can change. And also because, it is always good to find out about what we do not want to know. So we should challenge tastes, firstly and at length. This pupil only likes science; so he can cultivate history, law, literature; he needs it more than some others do. (Alain, cited in Château, 2017, p. 378)

The best interpretative framework for understanding human development from a pedagogical perspective is not found in medication, neuronal implants, or genetic modifications that give us high capacities but, above all, in the personal effort we make to surpass ourselves, whether or not these efforts finally bear fruit. As Carter explains (2018), one very valuable aspect of a human life in development is making progress rather than success, that is to say, achieving goals as a consequence of our efforts. Education would therefore be more of a consequence than a result.

Of course, we cannot end the analysis of this second form of cheating without noting the obvious limitation of our own thesis. The effort and determination in an assignment or mission do not actually guarantee us happiness nor will they enable us to achieve a truly well-lived life. Discovering the anthropological core of effort in human development is not the same as discovering the humanising core of the appropriate ends of this effort in human development. Efficient causes are not the same as final causes. That said, as Ibáñez-Martín has explained, school

must be a place where people learn to distinguish and value quality, and where they discover that quality products – no product is more important than achieving a well-lived life – are usually only obtained after a sustained effort. (2017, p. 148, own translation)

### **Third form of cheating: an educated individual is one who has more and better memory, attention, or reasoning**

Tillson (2018) draws upon an interesting proposal by Donald Davidson to understand the scope of human learning in sufficient depth. Davidson refers to the concept of causal history in learning, stating that even if we could insert propositional knowledge into a person's brain, it is still difficult to imagine that inserting the personal history of learning the particular and unique meaning of this knowledge at the same time would

be possible. A replica of me, Davidson would say, might say ‘house’ when it sees my house, but without a causal history of the sentimental appropriation of the personal meaning of that house it could not see it or feel it as *home*. In pedagogy, it is very important to be aware that “aspects of the natural history of how someone learned the use of a word necessarily make a difference to what the word means” (Davidson, 1987, p. 443, cited in Tillson, 2018, p. 602). The roots of this line of argument are, of course, in Searle’s famous theses against the strong artificial intelligence proposals, posed in the famous Chinese room simulation: “the computer works by manipulating symbols. Its processes are purely syntactically defined, while the human mind has something more than uninterpreted symbols: it associates them with meanings” (Searle, 2006, pp. 120-121).

Asimov must have sensed some of this when writing his famous novel *Profession*, which is set in the 66th century and considers the worlds of work and education. In it, he describes two fundamental days in the educational history of the individual: reading day at the age of 8 and education day at the age of 18. What Asimov calls “tape” and we would now call neurological implants is inserted on both of these days: on the first day it contains the ability to read, and on the second the theoretical and practical requisites for exercising a profession, which, as the author notes, is of course chosen by the pedagogues of the time according to individuals’ cerebral dispositions and never according to their desires. The novel tells the story of George Paten, who takes the initiative to read books on his own account, driven by an insatiable curiosity to learn, and according to the story, “little by little”, “step by step” and feeling “the satisfaction of learning”, he transforms, modifies, alters, his brain so that he has to be detained, for cerebral conversion, in an institution for the “feeble minded” as it is impossible to implant any program profession in him. There he has the following conversation with a pedagogue: “‘What good does it do you to read the book? (...) ‘Call it the satisfaction of curiosity,’ he said. ‘I understand a little of it today, perhaps a little more tomorrow. That’s a victory in a way’” (Asimov, 1957, p. 1). Yes, a human victory from its self-structuring liberty (Gracia & Gozálviz, 2019).

The day that it is possible to implant the *Nicomachean Ethics*, for example, in our memory, how will it be possible to speak of different readings? Where will be the personal and professional achievements we experience while we read it and which directly affect the learning of their

content? We argue that learning should not be separated from being. As long as we learn, we literally make ourselves different. *Rather than acquiring knowledge, the human being makes itself in what it knows and, above all, while it knows.* We are beings of embodied knowledge. This is why we must avoid the meliorative fallacy since “it is human beings who think and reason, not their brains” (Bennett & Hacker, 2003, p. 3). Moreover: to advance in our development we need to feel attracted by singular – and, better yet, exemplary – lives of this embodied knowledge, not by machines. No two maths teachers are the same. As Aldridge says

my knowing is not a matter of having extracted words from the page as ‘information,’ but to have seen those words on that page in dappled sunlight under the shade of a particular tree, and to have rested my head on the shoulder of the one who read them to me (2018, p. 624).

We are not mere capacities, however perfected they may be. We are not a memory, reasoning, or attention. We are not brains in a tank. It is not a matter of implanting content. In education, what matters is not reaching Rome but how one gets there. Not all roads are valid, not all means are valid. And not just because the dignity of the learner must be respected in all cases but because human beings realise themselves in the act, not in their capacity. In other words, they need determination in their actions in order to develop in their distinctiveness.

## Conclusions

In my opinion, it is vital that pedagogy participates in discussions about biotechnology because “the transhumanist project will undoubtedly decisively mark our political and philosophical debates over the coming decades” (Bellamy, 2020, p. 86, own translation).

I believe that this public voice of pedagogy must focus on raising three questions that are the basis of the present article. Firstly, that the idea of human development and consequently of the human condition is impoverished and twisted if we only approach it as a project of technological command. In effect, on the one hand, because

in the age of converging technologies, we should not be obsessed about being faster, taller, stronger, smarter, younger-looking, or long living, as



transhumanists urge us, but rather being more humane, that is, more caring and less smug, callous, cruel, or indifferent (Tirosh-Samuels, 2018).

And, on the other hand, because as Scruton (2018) has observed, we cannot explain the meaning of a marble sculpture by considering its physical and chemical properties and this is even less possible with the human being. Ultimately, transhumanism is wrong in wanting to help people achieve a better life by focussing exclusively on technological mediation (Güell *et al.*, 2019) because “anthropotechnology is ultimately another attempt to free ourselves once and for all from the political harness and design our life, saving us the mediation of the politeia in the shaping of what we are” (Luri, 2019, p. 143, own translation).

Secondly, we should also expose, from education, those who attempt to distance us from the perspective of human education as an intrinsic good. Indeed, one of the most widespread contemporary errors in pedagogy involves reducing the perspective of analysis of human education to a sort of training for ends other than itself. Education seems to have become just a means *to an end*, with which, as we have seen, for some, the means chosen is unimportant so long as this end is obtained: a pharmaceutical, an implant, a genetic alteration, a punishment, etc. Educating does not mean making the means indifferent agents. Educating is not managing. Educating is not measuring or calculating (Gil Cantero, 2020). Educating means taking ownership of the goods that resonate and ring in some ends, limits or values. Education is an endeavour, a task, an essentially immanent action, that transforms us from within, making us better or worse while it happens, while we act.

Ultimately, I believe that as educationalists we must remain alert in order to formulate what we could call a theory of educational losses or ways of cheating. “After all, are we educators, not philosophers. We are of necessity in sustained engagement with political, theoretical and also practical questions of education. We must therefore adopt and develop frameworks consistent with this engagement (...)” (Friesen, 2018). In effect, all of the meliorative literature sets out to win this cultural battle by making us see only what we gain; we must also note what these forms of cheating might make us lose, thus avoiding the tendency to “neutralise any possibility of the risks to come” (Sadin, 2020, p. 119, own translation). And among these forms of cheating, it is important to note the great pedagogical loss resulting from, on the one hand, neglecting the educational importance of emphasising learners’ place as agents without

delegating to anyone or anything the possibilities of the effort of each of them and, on the other hand, confounding priorities in human education since “true progress does not comprise the illusory ideal of improving the spirit and the human being, but improving the moral and legal order in light of our knowledge” (Gabriel, 2016, p. 289, own translation).

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