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Is Pedagogy Transhuman? : Reflections on the Relationship Between Pedagogy and Transhumanism

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Tekst jest udostępniony do wykorzystania w ramach
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Is Pedagogy Transhuman? Reflections on the Relationship Between Pedagogy and Transhumanism

Czy pedagogika jest transhumanistyczna?
Refleksje nad relacją między pedagogiką
a transhumanizmem

ABSTRACT

The following contribution aims at discussing the role of pedagogy against the background of a time in which limits are overcome through the use of new technologies. It is argued that pedagogy is in some way itself always related to both the recognition, as well as the overcoming, of limits. This can be seen first of all in the fact that both a recognition of the limit of the self as well as (or rather in differentiation to) a limit of the other are necessary in order to recognise oneself in the first place and therefore are essential to the constitution and formation of the self and the world. Secondly, the basic duty of pedagogy could be defined as the forming of human beings through the use of educational tools and by changing the limits that constitute the self. Adhering to this definition would therefore assume that there is a transhuman moment inherent in pedagogy itself.

KEY WORDS

death, cryonics, enhancement, immortality, genetic engineering, eugenics

SŁOWA KLUCZOWE

śmierć, kryptonika, ulepszenie, nieśmiertelność, inżynieria genetyczna, eugenika

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ABSTRAKT

Niniejszy artykuł podejmuje kwestię roli jaką pedagogika pełni w czasach, w których kolejne granice są przewyżczone dzięki nowym technologiom. Autorzy argumentują, że w pewnym sensie pedagogika zawsze wiąże się zarówno z uznaniem, jak i przekraczaniem granic. Po pierwsze, świadczy o tym fakt, że zarówno uznanie granic własnej jaźni, jak i granic (bądź raczej odróżnianie się od) innego jest konieczne przede wszystkim w celu autoidentyfikacji. Z tego też powodu uznanie tych granic jest istotne dla konstytuowania i formowania własnej jaźni oraz otaczającego nas świata. Po drugie, podstawowe zobowiązanie pedagogiki może zostać zdefiniowane jako kształtowanie człowieka dzięki narzędziom edukacyjnym i zmianie tych ograniczeń, które konstytuują jaźń. Stosowanie takiej definicji zakładałoby, że w samej pedagogice zawarty jest moment transhumanistyczny.

Death as an Option

In his theory on the *Bildung* of the human being (*Theorie der Bildung des Menschen*) written in 1793 Wilhelm von Humboldt gives an account on what he regards as essential in relation to the life of an individual: “It is the ultimate task of our existence to achieve as much substance as possible for the concept of humanity in our person, both during the span of our life and beyond it, through the traces we leave by means of our vital activity.”¹ Humboldt points out here that it is important that as humans we not only understand what it means to be human but also help to express it through our deeds. However, it seems that this form of self-expression is insufficient for Humboldt, but rather what is crucial to him is that we succeed in leaving behind a trace outlasting our own existence, which will still be there even once we have already passed away.

¹ W. v. Humboldt, “Theory of Bildung” [1793], in: *Teaching as a Reflective Practice: The German Didaktik Tradition*, eds. I. Westbury, S. Hopmann, K. Riquarts, Mahwah (NJ) 2000, p. 58. Original German: “Die letzte Aufgabe unsres Daseyns”, so Humboldt, bestehe darin “dem Begriff der Menschheit in unsrer Person, sowohl während der Zeit unsres Lebens, als auch noch über dasselbe hinaus, durch die Spuren des lebendigen Wirkens, die wir zurücklassen, einen so großen Inhalt, als nur möglich, zu verschaffen”. W. von Humboldt, “Theorie der Bildung des Menschen” [1793], in: *Was ist Bildung? Eine Textanthologie*, ed. H. Hastedt, Stuttgart 2012, p. 94.

Humboldt characterises an evident relationship between education and death. For him education goes along with giving one's own being both value and continuity. Furthermore, education to him implies experiencing the world and because the world is human in itself this includes the encounter with other human beings as well as their understanding of themselves and the world. Through this encounter with the world and with other beings in it, it is possible to recognise oneself, one's needs, wishes, abilities and potentials. The recognition of the self thereby implies not only understanding how I am as an individual, but also at the same time to understand how an individual should be in general. This ideal image of the individual, which firstly exists only as a possibility, should then be turned into reality. If education is understood in this way it results in the basic duty of education to support individuals in the recognition of themselves as well as in the realisation of their potentials. Yet there are limits both to self-recognition as well as to self-realisation. These limits are marked by the respective conditions of the world, in which the individual may express himself² in and which he has to experience. If the world is small and narrow, then self- and world-education (*Selbst- und Weltbildung*) are not possible to the same degree as in a bigger and broader world. Educators can and should facilitate ways in which the world of those entrusted to them is expanded, turned into a greater and richer one, in order to enable more extensive ways of education. In this respect, helping to overcome limits of the world we live in could also be analysed as a basic duty of pedagogy. There is, however, one limit which is definite and also insuperable for even the most accomplished of educators: it is the limit of death as an end to all options.

Mors certa, hora incerta (certain death, uncertain hour) is a Latin term which has often been inscribed in clocks. What characterises us as humans, is the ability to be conscious about our own mortality and therefore being able to adjust our life accordingly. Matheryn Naovarapong, a small girl from Thailand, was not granted the chance of developing such a consciousness. She was only 14 month old, when she was diagnosed with a brain tumour in April 2014. While the doctors tried everything possible to save the little girl's life, their efforts were in vain

² We would like to note at this point that we have chosen to use male pronouns for the sake of readability, however we always refer to both genders.

as Matheryn passed away in early January of 2015. Her parents, who were both engineers, had contacted *Alcor Life Extension* just before their daughter's death. The trust, based in Arizona, has been founded in 1972 and offers cryonics as a technical possibility in order to possibly circumvent death as an irreversible event.³

Cryonics is a method which can be traced back to Robert C.W. Ettinger (1918-2011) and which is based on the following fundamental idea formulated by Ettinger in 1962 in his book *The Prospect of Immortality*: "If civilization endures, medical science should *eventually* be able to repair almost any damage to the human body, including freezing damage and senile debility or other cause of death."⁴ In order for any physical damages to be repaired at all, at least some parts of the body need to be still existing in the first place. This is where cryonics becomes relevant. In the course of the cryonisation process the body is firstly prepared in a special way, then steadily cooled down and finally stored in liquid nitrogen at -196° Celsius. Whether it will actually ever be possible to reanimate a frozen human being with the help of new technologies remains questionable. Nonetheless, for those in favour of cryonics, the method presents at least a chance of turning the irreversibility of death into an option, which can be chosen but does not have to be chosen.

The Human that Needs to Be Enhanced

Having introduced the concept of cryonics, we have already illustrated one of the most important aspects of transhumanism.

³ At this point it is important to mention that for cryonicists those that have been cryonised are not to be defined as dead, whereas from a juridical perspective they would indeed be classed as dead. This is why it is compulsory that a doctor verifies the death before the body may be cryonised. Cryonicists only regard someone as dead when the chemical structure of their body has "decayed" or has been "disorganised" to the extent that even with the most sophisticated technology the original order could not be restored. It is for this reason that *Alcor* has to start the process of cryonisation immediately after the juristic or rather medical verification of death and why *Alcor* does not speak of the cryonised as dead but rather as patients. See B. Wowk, "Medical Time Travel", in: *The Transhumanist Reader*, eds. M. More, N. Vita-More West Sussex, UK 2013, p. 223; Alcor-Life-Extension-Foundation, *What is Cryonics?*, 2017, Available at: <<http://www.alcor.org/AboutCryonics/index.html>> (access: 23.02.2017).

⁴ R.C.W. Ettinger, *The Prospect of Immortality*, Garden City (NY) 1964, p. 11 (emphasis in original).

Transhumanism aims at overcoming biological limits with the help of technology.⁵ The most radical crossing of limits is most definitely to be seen in relation to death. However it would be insufficient to assume that all transhumanists aim at becoming immortal.⁶ On the contrary, transhumanism is an extremely heterogeneous intellectual movement which can be characterised by the following four basic aspects: (1) It is desirable to improve human abilities through the use of technologies. (2) Enhancement aims at obtaining complete control of abilities of both body and mind as well as of the environment. (3) Transhumanists are generally opposed to the idea of the existence of supernatural forces and regard faith as a narrative of pre-enlightenment.⁷ And finally (4) the human we know today is defined as a being in a transitional evolutionary state.⁸

This fourth aspect is extremely interesting from an educational perspective as it can be related to the history of education and goes along with the basic objective of *Bildung*. Julian Huxley (1887-1975), brother of the author of *Brave New World* Aldous Huxley, has elaborated on the idea that the human is located in a transitional state in his essay entitled *Transhumanism*. He says that:

⁵ M. More, "The Philosophy of Transhumanism", in: *The Transhumanist Reader*, op. cit., p. 4.

⁶ S.L. Sorgner, *Transhumanismus. Die gefährlichste Idee der Welt*, München 2016, p. 9.

⁷ An exception to this is constituted by the *Mormon Transhumanist Association*. This organisation is associated with the transhumanist organisation *Humanity+* and emanates from transfigurism, understood as a religious form of transhumanism. Transfigurism refers to the transformation of form as can be found in many religions. According to the *Mormon Transhumanist Association* this transfiguration will be evoked through technology. In their articles of incorporation they state that: "We believe that scientific knowledge and technological power are among the means ordained of God to enable such exaltation, including realization of diverse prophetic visions of transfiguration, immortality, resurrection, renewal of this world, and the discovery and creation of worlds without end." Mormon-Transhumanist-Association, *Articles of Incorporation*, 2017. Available at: <<http://transfigurism.org/pages/about/articles-of-incorporation/>> (access: 23.02.2017).

⁸ See T. Damberger, "Erziehung, Bildung und pharmakologisches Enhancement", in: *Aufklärung und Kritik. Zeitschrift für freies Denken und humanistische Philosophie (Schwerpunkt: Transhumanismus)*, ed. S.L. Sorgner, Nürnberg 2015, p. 176.

The human species can, if it wishes, transcend itself—not just spradically, an individual here in one way, an individual there in another way, but in its entirety, as humanity. We need a name for this new belief. Perhaps *transhumanism* will serve: man remaining man, but transcending himself, by realizing new possibilities of and for his human nature. ‘I believe in transhumanism’: once there are enough people who can truly say that, the human species will be on the threshold of a new kind of existence, as different from ours as ours is from that of Peking man. It will at last be consciously fulfilling its real destiny.⁹

In addition, it seems worth mentioning that Huxley was also an advocate of eugenics, a concept which can be traced back to Francis Galton (1822-1911), interestingly a cousin of Charles Darwin. In his book *Inquiries into Human Faculty and its Development* from 1883, Galton defines what he understood as eugenics, namely “the science of improving stock.”¹⁰ What can be understood as eugenics is the idea of improving humanity as a whole or a selected group of people by making sure that only those with “good” genetic material may reproduce while those with “bad” genetic material are prevented from reproduction.

The idea of enhancing humanity by interfering with the reproduction process is a phenomenon which is not only be found in recent history. Even in the *Politeia* as early as 400 B.C., Plato argues that next to education, the breeding of humans is an essential tool for achieving the goal of an ideal society.¹¹ In the beginning of the 20th century Ellen Key (1849-1926), a Swedish teacher, published a best-selling book called *The Century of the Child*, where she emphasised right at the start of the book that the goal of the new century would be to create a new human being.¹² The first chapter of the

⁹ J. Huxley, “Transhumanism”, in: *New Bottles for New Wine*, ed. J. Huxley, London 1957, p. 17 (emphasis in original).

¹⁰ F. Galton, *Inquiries into Human Faculty and its Development* [1883], 2nd edition, London – New York 1907, p. 17.

¹¹ See T. Damberger, *Menschen verbessern! Zur Symptomatik einer Pädagogik der ontologischen Heimatlosigkeit*, Darmstadt 2012, p. 96ff. Available at: <http://tuprints.ulb.tu-darmstadt.de/2976/1/Damberger_Menschen_verbessern.pdf> (access: 23.02.2017); Platon, *Politeia*, in: *Platon. Sämtliche Werke*, Band 2, ed. U. Wolf, Reinbek bei Hamburg 2008, p. 310.

¹² Ellen Key’s book managed to reflect the ‘zeitgeist’ of her time to a great extent. In 1900 the book was first published under the original Swedish title *Barnets århundrade*. In 1902 it was translated into a number of different lan-

book is entitled “The Right of the Child to Choose His Parents” and what Key means by this is the idea that a child should have the basic right to genetic material which is healthy. According to Key, parents who are thinking about having a child have the moral obligation to respect this right. In preparation parents should gather information on the quality of their genetic material and, based on that, decide if they would actually contribute to the improvement of humanity by reproducing. If it is not the case, then they should decide against the procreation of a child for the sake of both the unborn baby and all of humanity. In her argumentation Key explicitly refers to the works of Francis Galton and Alfred R. Wallace and suggests that findings that come from biology should be incorporated also into pedagogical considerations.¹³ Education or *Bildung* can only help to improve humanity to a small degree, as they cannot change the raw material with which they work. If on the other hand we could achieve improved biological material with the help of (self-inflicted) eugenic programmes, the results would be much better. According to Key, pedagogy hence only constitutes *one* essential aspect in the enhancement of humanity, whereas the *other* essential aspect is constituted by the breeding of humans.

If transferred to today, a modern approach to eugenics is represented by bioliberals,¹⁴ including John Harris, Allen Buchanan, Gregory Stock and Julian Savulescu, the latter being a philosopher teaching at Oxford. In 2001 Savulescu presented his first model entitled *Procreative Beneficence*.¹⁵ The model is designed as a maximising

gauges. In 1926, the year that Ellen Key passed away, the book was published in its 36th edition in Germany. See J. Reyer, *Eugenik und Pädagogik. Erziehungswissenschaft in einer eugenisierten Gesellschaft*, Weinheim – München 2003, p. 121.

¹³ E. Key, *The Century of the Child*, New York – London 1909, p. 19ff.

¹⁴ Bioliberals, in contrast to bioconservatives, are characterised by being explicitly in favour of the use of *human enhancement*, referring to the enhancement of humans with the help of new technologies. Bioconservatives, including for example Jürgen Habermas, Michael Sandel, Nicholas Agar and Francis Fukuyama, reject such approaches for the enhancement of human beings. See S. Clarke, R. Rebecca, “Bioconservatism, Bioliberalism, and the Wisdom of Reflecting on Repugnance”, *Monash Bioethics Review* 2009, vol. 28(1), pp. 1–21.

¹⁵ See J. Savulescu, “Procreative Beneficence: Why We Should Select the Best Children”, *Bioethics* 2001, vol. 15(5–6), pp. 413–426.

model with the aim of increasing positive properties in offspring (and in reverse reduce negative properties). Positive properties would include an above average intelligence, negative properties would in contrast include susceptibility for illness, especially those that might be handed down genetically. Savulescu considers both those possibilities that already exist at the moment as well as those that might exist in the future, being made possible through the use of pre-implantation diagnostics (PID) and genetic enhancement. He advocates the *obligation of having to choose the best child* in the light of these possibilities.¹⁶ In other words: if it would be technically possible to choose the healthiest, the most intelligent etc. embryo through the use of PID and gene-screenings and the possibility of genetic enhancement, then parents should not only have the right, but also the moral obligation to choose the embryo with the best genetic composition (and therefore choose against the embryos that don't have the best compositions). Savulescu argues that in this way it becomes probable that not only the chosen child will have a better life, but both the parents and society as a whole could also benefit from the child's existence. Thus Savulescu does not speak of individual cases or exceptions—similarly to Ellen Key—but rather about increasing the chance of a better life for as many as possible.¹⁷

Now what has to be emphasised, however, is that not all bioliberals are necessarily transhumanists as well. They might indeed be

¹⁶ What can be defined as *genetic enhancement* is a form of eugenics, which is referred to as liberal eugenics. What this means is that, in contrast to eugenics which are legally organised and regulated by nation states, the respective person or the parents of an unborn baby may decide on the eugenic measures taken themselves. Bioliberals often do not refer to this as eugenics but rather use the term *genetic enhancement*, in order to avoid any associations to the concept of heteronomous and nationally regulated eugenics, as was especially common in the first half of the 20th century in the United States, Germany and many other European countries (including Norway, Sweden, Iceland, Finland, Estonia and Denmark). See T. Damberger, *Menschen verbessern!*, op. cit., p. 151ff; J. Reyer, *Eugenik und Pädagogik*, op. cit., p. 18; M.J. Sandel, *The Case against Perfection. Ethics in the Age of Genetic Engineering*, Cambridge (MA) – London 2007, p. 63ff; S. Sorgner, *Transhumanismus*, op. cit., p. 42f.

¹⁷ At this point we would like to refer to the well stated criticism on the notion of liability of the *Procreative Beneficence* by Robert Ranisch. R. Ranisch, “Du sollst das beste Kind wählen!“. Eine Kritik des Pflichtbegriffs von Procreative Beneficence”, in: *Selbstgestaltung des Menschen durch Biotechniken*, eds. R. Ranisch, S. Sebastian, M. Rockoff, Tübingen 2015, pp. 191–208.

convinced that human enhancement should be used in order to (genetically) enhance the human race, thus also trying to overcome and transcend existing biological limits. But, in contrast to transhumanism, the enhancement strategies supported by bioliberals are not necessarily aimed at the realisation of a posthuman being.¹⁸ The human is not located in a transitional state according to a bioliberal perspective. In contrast to this, transhumanists argue that mankind is not the pride of all creation, but rather a link in an evolutionary chain. Darwin's theory of evolution has taught us that those that are able to adapt to environmental conditions in the best possible way are the ones that will survive. Everyone else is faced with ruin and extinction.

Fighting and Failing

In the 1880s Friedrich Nietzsche published his thoughts on the downfall of humanity in one of his most important works called *Thus Spoke Zarathustra*: “Mankind is a rope fastened between animal and overman—a rope over an abyss. [...] What is great about human beings is that they are a bridge and not a purpose: what is lovable about human beings is that they are a *crossing over* and a *going under*.”¹⁹ Now while Nietzsche was not a transhumanist himself, it seems remarkable that he was as clear-sighted as to assert that humans seemed to be subjected to a fundamental uncertainty in the cause of the Enlightenment era. Nietzsche describes this uncertainty as follows: “*God is*

¹⁸ Robert Ranisch and Stefan L. Sorgner point out, that in contrast to transhumanism there is no uniform and consistent movement of posthumanism. Altogether there are a number of different positions in relation to what can and may be defined as posthuman (see R. Ranisch, S.L. Sorgner, “Introducing Post- and Transhumanism”, in: *Post- and Transhumanism: An Introduction*, eds. R. Ranisch, S.L. Sorgner, Frankfurt am Main 2014, p. 14). A simple and valuable definition which can be used in the light of this contribution has been given by Nick Bostrom in his essay “Why I Want to be a Posthuman When I Grow Up”. He states that a posthuman is “a being that has at least one posthuman capacity. By a *posthuman capacity*, I mean a general capacity greatly exceeding the maximum attainable by any current human being without recourse to new technological means.” N. Bostrom, “Why I Want to be a Posthuman When I Grow Up”, in: *The Transhumanist Reader*, op. cit., p. 28f (emphasis in original).

¹⁹ F. Nietzsche, *Thus Spoke Zarathustra* [1885], eds. A. Del Carlo, R.B. Pippin, Cambridge 2006, p. 7 (emphasis in original).

dead!”²⁰ Before, god and religion served as a code for a fixed order, which was able to give hope and salvation even beyond death, because of the strong belief in an afterlife that goes along with faith. This fixed order and security was not able to hold up against critical interrogation and examination in the course of the Enlightenment era. What resulted therefrom was the fact that humankind had to exist without any sense of metaphysical certainty being lost in a state of spiritual homelessness. Placed in this situation, humans were faced with two possibilities to choose from, of which one was the decision to become the “*last human being*”.²¹ This last human being is said to live long, but the way in which he lives is marked by dishonesty. He knows that there are no certainties left, but rather than facing this knowledge, he tries to distract himself. This last human being marks the downfall of humankind, according to Nietzsche. Nietzsche is in favour of the downfall of humankind, but—and this is crucial—he is in favour of the downfall as a means of a transition to something different, better, higher—in short: the *Übermensch*.

The educational theorist Hans-Jochen Gamm has written an educational theoretical analysis of Nietzsche’s theory entitled *Standhalten im Dasein* (in English: *Withstanding in Existence*), in which he characterises the definition of the *Übermensch*.²² According to Gamm, the *Übermensch* is someone who tries to withstand the fundamental uncertainty of existing rather than resolving it. He aspires to not only endure the contradictions of our existence, but also unfold his full potential on top of that despite the existing contradictions and dichotomies. According to Nietzsche, the *Übermensch* is “meaning of the earth”²³—and in addition is something which does not yet exist, but still needs to be achieved. At the same time, Nietzsche urges us to be cautious: “I beseech you, my brothers, remain faithful to the earth and do not believe those who speak to you of extraterrestrial hopes! They are mixers of poisons whether they know it or not.”²⁴

²⁰ Ibidem p. 5 (emphasis in original).

²¹ Ibidem, p. 9 (emphasis in original).

²² H.-J. Gamm, *Standhalten im Dasein. Nietzsches Botschaft für die Gegenwart*, München – Leipzig 1993, p. 171.

²³ F. Nietzsche, *Thus Spoke Zarathustra*, op. cit., p. 6.

²⁴ Ibidem.

There are at least two different ways in which this passage might be interpreted. One of them, brought forward by Stefan L. Sorgner, assumes that Nietzsche sees the future of humankind and therefore also the preparation for the *Übermensch* in the natural sciences.²⁵ This interpretation is indeed plausible, as Nietzsche explicitly refuses to believe in any supernatural power. In addition, Sorgner's interpretation links together with the theory of evolution. That is to say, if the human being would manage to understand nature's laws more and more and use this knowledge in order to develop new technologies, he would not only be able to overcome physical and spiritual limits, but possibly be able to turn his own death (and therefore his personal downfall, the end of all of his options) into an eligible option. A technique which is able to overcome limits in order to provide new realms of possibilities is very interesting in the light of educational theory, because it provides the *necessary condition* needed to facilitate any form of experiencing the self and the world and being able to express oneself in the world in the first place. However, and this should not be ignored, as *sufficient condition*, so that the realms of possibilities created by technology may be used at all, educators and pedagogues are equally essential.

All this being said, we still maintain that there is a weakness in Sorgner's interpretation of the Nietzsche section just mentioned. Those that use technology in order to enhance their body, their mind and their environment aiming at overcoming their being human as such in order to become a posthuman being, are indeed not loyal to the world at all. Because to be loyal, in Nietzsche's sense, would include being able to withstand the contradictions and dichotomies, the everlasting highs and lows of genesis and demise or at least try to withstand it all. We would argue that it signifies being able to self-develop despite all this, to express oneself, to leave a trace in the sand while knowing that the next wave will wash it away forever. The *Übermensch* hence represents both transition and demise. At the same time we wish to stress that this does not mean one should reject technology altogether or that one should refrain from the attempt to overcome one's limits using for example human enhancement as

²⁵ S.L. Sorgner, "Nietzsche, der Übermensch und Transhumanismus", in: *Der neue Mensch? Enhancement und Genetik*, eds. N. Knoepffler, J. Savulescu, München 2009, p. 139.

an option. This has been summarised by Roland Reichenbach in his *Philosophy of Bildung and Education* (German: *Philosophie der Bildung und Erziehung*) very accurately: “The struggle is not without hope, but failure is certain!”²⁶ The point is then to counteract the limits we are faced with, which are a sign of heteronomy and which we did not create ourselves, with all the strength we have. What is important is to expand our freedom, our autonomy, creating spaces in which we can express ourselves within this world. As what matters is that despite all this we have to recognise that we can only experience ourselves and thus learn what we are and what we could be via those limits, which we will never be able to transgress completely. In a world where limits are overcome through the advancement of new technologies, it is thus the duty of pedagogy and educational theory and practice to be able to teach how one can understand engaging with these limits both as a chance as well as a necessity in order to be educated on how to become a human being.

Transgression and Preservation

Benjamin Jörissen and Winfried Marotzki have argued that *Bildung* as an orientation to the self and the world holds a reference to transcendence in itself.²⁷ The question that becomes apparent is how education deals with limits, whether limits are seen as solid, fixed and insuperable or whether they are understood rather as challenges which need to be transgressed. Assuming that the latter is true, the question remains as to which of these limits should be overcome with the help of new technologies and which should be accepted as they are despite the ability to overcome these limits already or (possibly) in the near future. According to the transhumanist Torsten Nahm, the question of how to deal with these limits and possible transgressions is crucial as it shows whether someone advocates a humanist or transhumanist perspective. Thus the humanist, as Nahm argues, may also aim to advance himself, yet he seeks to do so only within

²⁶ Original German: “Der Kampf ist nicht ohne Hoffnung, aber das Scheitern ist gewiss!”. R. Reichenbach, *Philosophie der Bildung und Erziehung. Eine Einführung*, Stuttgart 2007, p. 167.

²⁷ B. Jörissen, W. Marotzki, *Medienbildung – Eine Einführung. Theorie – Methoden – Analysen*, Bad Heilbrunn 2009, p. 34.

the boundaries of what is biologically possible using the means of education. In contrast, transhumanists do not accept these biological boundaries: “For him it is crucial to overcome the imperfections and weaknesses inherent to the evolution of biology in order to reach a new transcending stage of existence, the *conditio humana*.”²⁸ Similar to this, Max More argues that: “Humanism tends to rely exclusively on educational and cultural refinement to improve human nature whereas transhumanists want to apply technology to overcome limits imposed by our biological and genetic heritage.”²⁹ Hence at the heart of the differentiation between humanists and transhumanists is the question of whether the boundaries of biology are being accepted or not. Looking at the history of education we can see that it has indeed been recommended to rely on natural sciences, especially biology, in order to achieve better genetic material. The genetically improved humans should then be subjected to further educational measures in order to enhance humankind as a whole. However, it was never the objective of pedagogy to transcend humankind as such which is where education differs from transhumanism.³⁰

Today we are faced with developments that once again raise questions of what it means to be human and what the limits of being human are, not only because of the possibility of genetic engineering, but also because of the disruptive developments in relation to information and communication technologies. Today we are already able to open doors or operate attendance clocks and copiers using implanted RFID-chips. Kevin Warwick, a former professor for cybernetics, proved that it is possible to operate an external cybernetic hand with an implanted Chip as early as 1998.³¹ The limits of the

²⁸ German original: “Für ihn gilt es, die Unvollkommenheiten und Schwächen, die inhärent in der evolutionär entstandenen Biologie sind, zu überwinden und eine neue, die *conditio humana* transzendierende Stufe der Existenz zu erreichen.” T. Nahm, “Transhumanismus: Die letzte große Erzählung”, in: *Reader zum Transhumanismus*, ed. M. Ji Sun, Norderstedt 2013, p. 17 (emphasis in original).

²⁹ M. More, “The Philosophy of Transhumanism”, op. cit., p. 4.

³⁰ See C. Coenen, R. Heil, “Historische Aspekte aktueller Menschenverbesserungsvisionen”, in: *Jahrbuch für Pädagogik. Menschenverbesserung – Transhumanismus*, eds. S. Kluge, I. Lohmann, G. Steffens, Frankfurt am Main 2014, p. 38.

³¹ See K. Warwick, “Transhumanism: Some Practical Possibilities”, *FIF-Kommunikation. Zeitschrift für Informatik und Gesellschaft* 2016, no. 2, p. 24f.

human body are transcended through the use of information and communication technologies (especially those of digital media) that get under people's skin. For pedagogy, this form of transcending limits proves to be a chance to return to its basic principles which have characterised the discipline since its early beginnings in the 18th century, namely the education of the human. Especially in the light of new technologies that manage to transcend limits, the basic question is thus: What defines a human being and how does the human become human?

Humboldt has revealed to us, as already shown before, that the human being is in himself a force which seeks to persist and not demise, which seeks to experience and express himself within the world and thus wishes to leave behind a trace outlasting his own existence. Assuming that the human is defined by these attributes and thus can be characterised as the described force, does in turn not mean that he has to stay bound to the physical requirements that define him today. It simply means that the human is a force which needs the other, referring to that other which is beyond his (alterable) limits, in order to experience himself. The human has thus always already been transcending limits.³² Subsequently, what follows is that the transhuman is not the other of the human, but that being human is in itself transhuman. This insight is crucial for pedagogical theory which not only aims at educating people to become the best possible version of themselves and tries to evoke what is human in each individual, but beyond that targets this moment of transcendence which is inherent to being human. At the same time, pedagogy is well advised not to fight for a complete absence of limits or the transgression of all boundaries, meaning complete perfection, as its ultimate target. Rather what is important, is to understand the other, which lies beyond boundaries and which may in short be referred to as transcendence, as necessary and worthy of being preserved in order to facilitate self-awareness and subsequently the forming of the self and the world. Finally, it is exactly in these contradictions and entangled in the existing opposites that pedagogy in times of emerging transhumanism is to be located.

³² See T. Damberger, "Zur Information: Der blinde Fleck im Transhumanismus", *FIfF-Kommunikation. Zeitschrift für Informatik und Gesellschaft* 2016, no. 2, p. 34.

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