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“The Most Dangerous Idea?” Islamic Deliberations on Transhumanism

Anke Iman Bouzenita¹ 

“Aging is a disease that can be cured” (Zoltan Istvan)

vs

“Every living being shall taste death” (Quran 3:185)

Abstract

This paper provides a discussion of aspects of the transhumanist movement and their intellectual and bioethical implications from an Islamic perspective. After an introduction to transhumanism and some of its variations, it discusses the underlying suppositions of transhumanist thought: The supposed absence of the body – mind – soul complex and the idea of volitional evolution of humankind. It then goes on to discuss the notion of enhancement and body modification, on a technological, pharmacological and genetic level from an Islamic point of view. In conclusion, the paper discusses the idea of “the good life”. The paper concludes that, although transhumanism is not a new idea, but rather a conglomerate of old ideas in technologically backed dystopian garb, and although there are obvious disparages between tenets of transhumanism and Islam at a very basic level, Muslims ought to be aware of its trajectory, as influences and repercussions will be felt globally.

Keywords

Transhumanism • Islamic bioethics • Volition evolution • Enhancement • Extreme longevity • Maqāsid al-sharī’a • Islamic worldview

“En Tehlikeli Fikir?” Transhümanizm Üzerine İslami Mülâhazalar

Öz

Bu makale, transhümanist akımın bakış açılarını ve bunların entelektüel ve bioetik çıkarımlarını İslami bir perspektiften tartışmaktadır. Transhümanizme ve onun bazı varyasyonlarına bir girişten sonra bu çalışma, transhümanist düşüncenin altında yatan varsayımları ele almaktadır: Beden-akıl-ruh kompleksinin sözde yokluğu ve insanlığın iradi evrimi fikri. Daha sonra, iyileştirme ve beden modifikasyonu kavramlarını teknolojik, farmakolojik ve genetik bir düzlemde İslami bakış açısından tartışmaya devam etmektedir. Sonuç kısmında ise çalışma, “iyi yaşam” düşüncesini konu edinmektedir. Makale, transhümanizmin yeni bir fikir olmayıp aksine teknolojik açıdan desteklenmiş distopik kışvede eski fikirler yığını olmasına ve transhümanizmin ve İslamiyet’in ilkeleri arasında çok temel bir düzeyde ayrılıklar? olmasına rağmen, etkileri ve yansımaları küresel olarak hissedileceği için Müslümanların bunun gidişatının farkında olması gerektiği sonucuna varmaktadır.

Anahtar Kelimeler

Transhümanizm • İslami biyoetik • İradi evrim • İyileştirme • Sonsuz yaşam • Makâsıd-ı şerī’a • İslami dünya görüşü

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“The Most Dangerous Idea?” Islamic Deliberations on Transhumanism

Neuroscience, bioengineering, cyborgism, nanotechnology, man-machine interfaces, mind uploading, enhancement, volitional evolution, singularity, a new human race: is transhumanism “the most dangerous idea”?

Ideas and movements affiliated with trans- or post-humanism are multifaceted. They draw heavily on certain philosophical suppositions and conundrums embedded in classical to contemporary (postmodern) Western thought, emerging in recent decades with force in a globalised world of mind-boggling technological advances and unforeseen possibilities.

One cannot discuss transhumanism and its different expressions from an Islamic angle by tackling certain keywords or aspects in isolation only. It is rather necessary to assess the different aspects of transhumanism under discussion of the worldview related background and ultima ratio. This paper may therefore go beyond analysing the mere bioethical concerns of certain aspects of transhumanism in favour of a more holistic approach, attempting to position transhumanist vis-à-vis Islamic thought. It is not a paper discussing the relationship between Islam and science. Contrary to what some may think and write, there is no need to arrive at a reconciliation between Islam and science as there is no initial bias between both. Currently there is rather a neglect of science by scholars of the Islamic sciences, just as there is a neglect of the Islamic sciences by experts in anything else. Despite many attempts to close this gap, it remains prevalent in any science-related discourse in the Islamic world today. It is not the main concern of this paper. The question is, rather: in how far are the promises of transhumanism, however much they may come under the propagation of science and modernity, rationally and scientifically verifiable and feasible? And where do differences in worldview draw the line between acceptability and non-acceptability from an Islamic point of view?

Transhumanism: Definition and History

Most of the intellectual underpinnings of modern transhumanism are neither new, nor surprising. The idea of human “enhancement” is probably as old as humankind²; with variations in approach, goals and ways of enforcement. In the modern era, it brought about eugenics and Social Darwinism. The “quest for improvement”³ considerably changed with the advancement of scientific means of the last decades.

2 Alexandra M. Franco, “Symposium Article: Transhuman Babies and Human Pariahs: Genetic Engineering, Transhumanism, Society and the Law,” *Children’s Legal Rights Journal* 37, no. 2 (2017): 191.

3 Franco, “Symposium Article: Transhuman Babies and Human Pariahs: Genetic Engineering, Transhumanism, Society and the Law,” 192.

Intellectual precursors to the movement star Nietzsche (d.1900), who described the concept of humanity in a transient stage⁴, or Thomas Henry Huxley (d.1895), nicknamed "Darwin's Bulldog" for his stern promotion of Darwinian evolutionism. Notable for engaging with transhumanism are also other members of the Huxley family, such as grandson Aldous Huxley (d.1963), author of "A Brave New World", a book that seems to anticipate aspects of a transhumanist vision gone wrong. His biologist grandson and member of the British Eugenics Society, Julian Huxley (d.1975) seems to have been the first to coin the term "transhumanism" in 1957.

In his 1957 essay "New Bottles for New Wine," Huxley announces:

The human species can, if it wishes, transcend itself – not just sporadically, 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.⁵

The modern transhumanist movement came into being in the 1990s, with propagators such as FM-2030 aka F.M. Esfandiary (*Are you a transhuman?*), Nick Bostrom (who, with David Pearce, established the World Transhumanist Association in 1998; author of *Transhumanist Frequently Asked Questions*, 1999, and *A History of Transhumanist Thought*, 2004), Max More (*Transhumanism: A Futurist Philosophy*), Natasha Vita-More, transhumanist artist and James Hughes (*Citizen Cyborg*, 2004). Although differences in approach and societal vision exist⁶, common transhumanist tenets are the elimination of human disease and suffering, increased intelligence, and human immortality itself.⁷ The catchy slogan "Why choose to die?" is such an example. It is however not propagated by every faction of the transhumanist movement. Sorgner's approach of a "moderate" transhumanism weakens this goal into attempts to strive for life prolongation or extreme longevity.⁸ "Technological immortality", as suggested by Ronald Cole-Turner, is opposed to "true" or "biological immortality" in the sense that life may still be ended by accidental death or the destruction of the universe.⁹

4 "Symposium Article: Transhuman Babies and Human Pariahs: Genetic Engineering, Transhumanism, Society and the Law," 192.

5 Julian Huxley, "Transhumanism," *Ethics in Progress* 6, no. 1 (2015): 12-16. doi: 10.14746/eip.2015.1.2. Reprinted from Huxley, Julian. *New Bottles for New Wine* (London: Chatto and Windus, 1957), 15.

6 See Franco, "Transhuman Babies," 193, Stefan Lorenz Sorgner, *Transhumanismus. Die gefährlichste Idee der Welt!*? (Freiburg im Breisgau: Herder, 2016), p. 24ff.

7 See Franco, "Transhuman Babies," 192f.

8 Sorgner, *Transhumanismus*, 33.

9 Hamid Mavani, "Islam- 'God's Deputy: Islam and Transhumanism,'" in *Transhumanism and the Body. The World Religions Speak*, ed. Calvin Mercer and Derek F. Maher (New York: Palgrave Macmillan, 2014), 75.

Transhumanism, in itself a philosophical, cultural and political movement, holds that human development is still in an early phase¹⁰ to be radically changed by technology. *Singularity* describes the point in time where man and machine (or artificial intelligence, AI) will merge, giving way to unforeseen possibilities. Transhumanist visions entail the annihilation of any distinction between the biological and the mechanical or between physical and virtual reality.¹¹ Transhumanism has been described as a Religion of Technology for its utopian visions, presenting technology as the saviour of mankind.¹² In this vein, research results on longevity are pictured as if eternal life, the complete reversal of the aging process, were waiting around the corner.¹³

Notable, and this will be further discussed below, is the “transition of Transhumanism’s values into mainstream society” as, for instance, reflected in the application of current reproductive technologies.¹⁴ Though the movement may not be palatable to most contemporaries and may not have taken a grip on societies outside of the Western hemisphere at all, it needs to be given attention as it now forcefully pushes a societal and political agenda.¹⁵ Transhumanists such as Zoltan Istvan campaigning for presidency in the US may serve as a hint to the future. Francis Fukuyama, in his bioconservative criticism on the consequences of the biotechnology revolution¹⁶ has alluded to the possibility that internationalisation and politicisation of transhumanism could contribute to undermining the sovereign state and weaken principles such as individualism, free will and humanism; a statement one does not need to share in its liberal outlook, but that certainly reveals a growing preoccupation and concern with the movement.

10 Susan Schneider, “Future Minds: Transhumanism, Cognitive Enhancement and the Nature of Persons,” *University of Pennsylvania: Neuroethics Publications* (2008), 3.

11 See Ray Kurzweil, “Reinventing Humanity: The Future of Human-Machine Intelligence,” *The Futurist* (March-April 2006): 39-40; 42-46.

12 Andrew Pilsch, *Transhumanism. Evolutionary Futurism and the Human Technologies of Utopia* (Minneapolis: University of Minneapolis Press, 2017), 1-25.

13 See for instance De Grey, Aubrey, “Radical Life Extension: Technological Aspects,” in: *Religion and the Implications of Radical Life Extension*, edited by Calvin Mercer and Derek F. Maher, 13-24 (New York: Palgrave Macmillan, 2009); Pilsch, *Transhumanism*, interim.

14 Franco, “Transhuman Babies,” 197; see also Roland Benedikter and Katja Siepmann, “‘Transhumanism’: A New Global Political Trend?” *Challenge* 59, no. 1 (2016): 47-59, and Philip Hefner, “The Animal that Aspires to be an Angel: The Challenge of Transhumanism,” *Dialog: A Journal of Theology* 48, no. 2 (September 2009): 158-167.

15 Benedikter and Siepmann, “Transhumanism,” 47.

16 Francis Fukuyama, *Our Posthuman Future: Consequences of the Biotechnological Revolution* (New York: Picador, 2003) and “Transhumanism”, *Foreign Policy*, October 23, 2009. <http://foreignpolicy.com/2009/10/23/transhumanism/>, compare Benedikter and Siepmann, “Transhumanism”.

Porter has criticised the rather loose usage of the term “humanism” in the academic vernacular, used in a “historically ambiguous manner that blurs the line between humanism(s) and the Enlightenment”.¹⁷ Both the terms *trans-* and *post-* humanism are apparent misnomers. Taking into account that humanism is a worldview placing the human being at the centre of things, as a measurement to everything else (*Omnium rerum homo mensura est*), be it in an enlightenment or pre-enlightenment meaning, neither “*trans*” nor “*post*” humanism overcomes this approach. Denying the existence of the Creator and His prerogatives, it allots to the human the God-like decision to *transcend*, i.e. overcome, the physical and mental limitations of the human being, and evolve into a *posthuman* being. There seems to be a confusion between the terms ‘humanism’ and ‘humanity’. The term ‘trans-humanity’ or ‘trans-humankind’ may be more descriptive of the movement, as the final goal is to transgress and overcome the (biological) human condition per se, not the fixation on the human being as source and initiator of rules and standards.

Transhumanism and its Basic Suppositions – an Islamic View

The idea of transhumanism seems hardly to have been academically promoted or even discussed in the Islamic world so far.¹⁸ It is even difficult to translate the notion into Arabic – rather than just transliterating it, i.e. writing it in Arabic letters (ترانزهومانزم “tranzhumanizm”), for the obvious difficulty to catch the meaning of the prefix “trans” in the sense of “beyond”, “in between”, “transcending”. Google translate offers الإنسانية العابرة which rather re- translates as “humankind in transition”, while one would have to translate ما بعد الإنسانية to capture the facet of human evolution ‘beyond’ its current stage of development. The ostentatious lack of interest in the topic may be for reasons other than intellectual neglect. Although it is correct that the Islamic world is currently at the receiving, not the producing end of global knowledge production, and that it rather reacts than acts; one also has to understand that the main tenets of the movement are not palatable to a majority Muslim or at least Islamically socialised audience. The attempt to answer why this is so catapults us directly into the discussion.

From the outset, the most striking feature of transhumanism is its denial of the body - mind - soul complex. The transhumanist vision of human nature is entirely materialistic, but in a contradictive way, as we will see. With the denial of the eternal soul and death as a gateway to eternal life comes the denial of the necessity of a limited physical lifespan. The promotion of eternal this-worldly life is then advocated as revolutionary, “the most dangerous idea”,¹⁹ albeit its being as old as mankind itself. From an Islamic perspective, the intellectual discussion of (at least this branch of) transhumanism could stop here.

17 Allen Porter, “Bioethics and Transhumanism,” *Journal of Medicine and Philosophy* 42 (2017): 238.

18 The few Muslim contributions I was able to find go back to Muslims living in Western countries.

19 See the title of Sorgner, *Transhumanismus*.

Transhumanist literature reveals some fundamental problems in Western secular thought, among them the inability to define what constitutes the human. How to define a human being? While some still refer to Classical Greek thought to figure it out, others seek the solution to this conundrum in psychology, legal definitions of personhood and human agency, or in science, where it is surprisingly difficult to take human DNA as an indicator of humanness, there being no major difference between human and, say, chimpanzee DNA. Albeit some interesting and plausible critiques on transhumanism exist within these frameworks,²⁰ any attempt at self-definition based on human constructs must necessarily go wrong. Many contributions to transhumanism can be distilled into a couple of words, namely, the inability of the human being to define himself properly.

Attempts to describe the body-mind-soul complex in secular materialist contributions suffer from terminological shortcomings that are prone to conceptual confusion. In this light, Qazi et al have recently analysed the philosophical underpinnings of the contemporary neuro-scientific discourse. Transhumanist thought may be categorized as monist, holding that what dualists held to be “an immaterial, distinct mind or soul is simply part of the body, i.e. located and contained within the physical brain”.²¹

The Islamic worldview does not subscribe to this reductionism. What makes the human being human from an Islamic point of view are concepts such as being created for a purpose – namely to serve Allah and be His *khalīfah*, (vice-regent on earth), being endowed with dignity (*karāmah*; “We verily bestowed dignity on humankind” (Sūrat al-Isrā’:70) وَلَقَدْ كَرَّمْنَا بَنِي آدَمَ, a right to inviolability (*ḥurmah*), responsibility, accountability, a sound mind (*‘aql*), personality (*nafs*) and soul (*rūḥ*).²² Human agency and its different stages are juristically discussed

20 See Schneider, “Future Minds,” Franco, “Transhuman Babies,” and Agneta Sutton, “Transhumanism: A New Kind of Promethean Hubris,” *The New Bioethics* 21, no. 2 (2015): 117-127.

21 Faisal Quazi, Don Fette, Syed S. Jafri, Aasim I. Padela (2018), “Framing the Mind-Body Problem in Contemporary Neuroscientific and Sunni Islamic Theological Discourse,” *The New Bioethics* 24, no. 2 (2018): 160.

22 It should be mentioned at this point that Muslim scholars have and still do discuss the nature of the soul, body and mind and their interrelation controversially. Ibn Kathīr, for instance, in his explanation to Sūrat al-Isrā’ (17:85), quotes views that *rūḥ* and *nafs* are nearly congruent. As this paper does not attempt to give an account of Muslim scholarly contributions throughout the ages, but rather attempts to position the Islamic view vis-à-vis transhumanist materialistic thought, the paper confines itself to giving an outline only. It may be noted that Islamic scholarship on the mind – body – soul complex has, particularly in its philosophical orientation, been formed in its discussion of Greek thought. Particularly the terms *rūḥ*, *nafs* and *‘aql* may acquire different meanings, according to context or be used synonymously, which makes translation difficult. The term *nafs*, for instance, can, according to the contextualization, be translated as soul, person, human being, psyche, mind, life; and the list is not exhaustive. *‘Aql* refers to the process of thought or sound mind; the term *rūḥ* refers to the soul, but could also (used with an article) refer to the Angel Jibrīl (peace be upon him). For the sake of this paper, terms are used and translated in their context.

under the term *ahliyya*; where every human being has an *ahliyyat al-wujūb*, or unchangeable agency of entitlement to rights by virtue of being human; while the agency of action and accountability (*ahliyyat al-adā'*) varies with development, circumstances and state of the sound mind (*‘aql*). Important to note is that the rights of the person (under *ahliyyat al-wujūb*) are in no way compromised if the sound mind is, be it due to natural (sleep, fainting, illness) or acquired reasons (intoxication).²³

The Islamic worldview states that the human being is endowed with an eternal soul (*rūḥ*) which leaves the body while the human is asleep to return when he wakes up; its leaving the body with no return marks death; only on the Day of Judgment will resurrected body and human soul be reunited. The soul can neither be fully explained with the restrictions of the human mind, nor can it be located in the human body.

وَيَسْأَلُونَكَ عَنِ الرُّوحِ قُلِ الرُّوحُ مِنْ أَمْرِ رَبِّي وَمَا أُوتِيتُمْ مِنَ الْعِلْمِ إِلَّا قَلِيلًا (سورة الإسراء، 17:85)

And they ask you (Muḥammad) about the soul (*al-rūḥ*). Say; the soul is a matter of my Lord, and only little knowledge has been given to you. (Sūrat al-Isrā', 17:85).

The human being is endowed with *nafs*, or the Self; the Qur'an mentions the misleading or rightly guiding potentials of *nafs* (Sūrat al-Shams 91: 7-8), the *nafs* commanding evil (*al-nafs al-ammārah bi-s-sū'*) (Sūrat Yūsuf, 12:53), the reproachful *nafs* (*al-nafs al-lawwāmah*) (Sūrat al-Qiyāmah, 75:2); the tranquil *nafs*, at peace with itself (*al-nafs al-muṭma'innah*) (Sūrat al-Fajr 89:27). The term *nafs* might best be described as the *self* or *ego*. Contrary to the eternal soul, the *nafs* dies with the person. In the context of transhumanism, both *nafs* and *rūḥ*, the great mysteries of human existence, seem to be reduced to mere perceptions that may be saved to a hard disk.

Death is an inevitable fact of life. Every being's life span is fixed and can neither be shortened nor extended for any period of time.

كُلُّ نَفْسٍ ذَائِقَةُ الْمَوْتِ

"Verily, every being shall taste death" (Sūrat Āl 'Imrān, 3:185)"

وَلِكُلِّ أُمَّةٍ أَجَلٌ ۖ فَإِذَا جَاءَ أَجْلُهُمْ لَا يَسْتَأْخِرُونَ سَاعَةً ۖ وَلَا يَسْتَقْدِمُونَ ۚ وَلِكُلِّ أُمَّةٍ أَجَلٌ ۖ فَإِذَا جَاءَ أَجْلُهُمْ لَا يَسْتَأْخِرُونَ سَاعَةً ۖ وَلَا يَسْتَقْدِمُونَ

23 Imran Ahsan Khan Nyazee, *Islamic Jurisprudence: Uṣūl Al Fiqh* (The Other Press, Kuala Lumpur, 2003), 109ff.

Every nation has their fixed life span. And if their end arrives, they cannot postpone it or speed it for any period of time” (Sūrat al-Aʿrāf, 34).

It is this unchangeable dogma that situates transhumanism as unacceptable for Muslims. This life will definitely end, the next life will not. This life is the test phase, the gateway, to the next. The human being may pass and be awarded Paradise, or not pass and be awarded Hellfire. As long as this dogma stands as a firm belief, and Jannah as well as Jahannam are understood as realities, not metaphors, the more radical version of transhumanism cannot gain ground with Muslims.

Some of the few contributions on transhumanism by Muslim authors seem to attempt to gain ground for a reframing of these concepts. Two anthologies, both edited by Maher and Calver (*Radical Life Extension*, 2009; *Transhumanism and the Body*, 2014), attempt to discuss positions of world religions vis-à-vis transhumanism. Both are framed as attempts to initiate discussions and prepare ground with various religious communities rather than critically discuss the larger implications of transhumanism; in this vein, they attempt to reconcile some aspects of transhumanism with Islamic thought.

In the 2009 anthology *Radical Life Extension*, Aisha Y. Musa concludes that there is no conflict with Islamic norms and ideals from the perspective of scripture and doctrine for the acceptance of the idea of radical life extension (RLE), at least as far as immortality is not implied. Her main argumentation in the paper revolves around precedent cases of extreme longevity with the Prophet Nūḥ (Noah, may peace be upon him); she also suggests that “alternative understandings of death and the hereafter that could accommodate extreme longevity and even practical immortality are possible”.²⁴ She then focuses on the practical implications of extreme longevity for rituals, practices and institutions.²⁵

In the second anthology, *Transhumanism and the Body* (2014), Mavani discusses aspects of transhumanism in relation to Islamic thought. Knowing that basic tenets of transhumanist thought, like attaining eternal this-worldly life other than by divine intervention, are not reconcilable with the Islamic faith; he, too, tries to endorse the weakened version of life extension rather than immortality. Mavani emphasises that the propagated idea of life extension “does not collide with the religious world view that humans will die eventually”.²⁶

24 Aisha Y. Musa, “A Thousand Years, Less Fifty: Toward a Quranic View of Extreme Longevity,” in *Religion and the Implications of Radical Life Extension*, edited by Calvin Mercer and Derek F. Maher, 130.

25 Musa, “A Thousand Years, Less Fifty: Toward a Quranic View of Extreme Longevity,” 128ff.

26 Hamid Mavani, “God’s Deputy,” 75.

As far as life extension is concerned, the human's life span is not subject to his decision, is not in his knowledge, and is decided on before the human being is born.²⁷ In this sense, none of the examples of extreme longevity in the Quran, such as the Prophet Nūḥ, who lived nearly a thousand years, can serve to make a point for the endorsement of volitional longevity; the human life span is in any case subject to the Creator's discretion, not to the human being's will. It is therefore as futile to strive for a prolongation as it is to regard the latter as purely beneficial. A longer life span from an Islamic point of view is an opportunity to accumulate good deeds; but it can also prove to be the opposite. The wish for life extension, in the Islamic scriptures, is forwarded by dubious characters, those who try to extend the final verdict on their neglected duties and shortcomings prior to being judged for their deeds. "*When death comes unto one of them, he cries, "My Lord, let me return so as to make amends for the things I neglected"*" (Sūrat al-Mu'minūn 23: 99f).

The promise of this-worldly immortality and immaculate existence itself is, in the Islamic scriptures, the promise of Iblis, Satan, to Adam (peace be upon him), the first human being. Iblīs tried to counterfoil Allah's command to Adam and Ḥawā (Eve, peace be upon them), not to even come close to the forbidden tree. Satan whispered to them, insinuating "*Your Lord forbade you from this tree only lest you should become angels or become of the immortals*" (Sūrat al-A'raf 7:20). Promises to obtain immaculate flawlessness and longevity like angels, or even this-worldly immortality, will, from an Islamic point of view, always be linked to the devil's attempt to mislead humankind. It may also explain why, from an Islamic epistemological point of view, the quest for longevity and this-worldly immortality is as old as humankind itself and finds reflections from the Accadian epic of Gilgamesh to Greek mythology to Nietzsche to transhumanism.²⁸

The wish for eternal life is a human disposition. In a materialistic worldview that sees happiness and the deeper sense of life in acquiring material and sensational pleasure only, this disposition is being redirected by transhumanist aspirations to a this-worldly dimension only. This is in direct contradiction to Islamic teaching, as eternal life is in the Hereafter, either in Paradise (*Jannah*) or Hellfire (*Jahannam*) according to its tenets.

27 Al-Nawawi, Abū Zakariyā' Yahyā b. Sharaf, *Hadith Nawawi*, N.d., accessed October 16, 2018. <https://sunnah.com/nawawi40#4>, ḥadīth no.3.

28 See Nils Bostrom, "A History of Transhumanist Thought," *Journal of Evolution and Technology* 14, no.1 (2005): 1ff

Some amount of confusion seems to exist with regard to the human being's free will.²⁹ Presence of *nafs* and the accountability of the human being mark his difference from both animal and machine. Neither of these can be expressions of or linked to genes, as this would defy the purpose of the human's accountability for his deeds on the Day of Judgment. In that sense, it is rather futile to ask, "if transhumanists were to offer the possibility of modifying a human's genes so that they would be less likely to lie, would that be forbidden."³⁰ If manipulation of the human being's free will takes place, it will rather be through mind control by diverse means, like insinuation and false promises, not genetic alteration.

This brings us to another very important point of discussion: Robots and artificial intelligence. The idea of creating interfaces between artificial intelligence (AI) and human beings; hybrid creatures between robots and humans (cyborgs), 'chipping' newborns so as to enhance; or, in the most radical version; uploading the brain on data carriers. Apart from the ethics of this enterprise which is still in need of discussion; how about the mere feasibility?

It seems that, despite major advances, experts in the field are less enthusiastic about prospects of joining brain and machine than transhumanists are.³¹ For the time being, any user of google translate may have had an insight into the gap between artificial intelligence and the workings of the human brain. Any software user knows of the proneness to viruses, data loss, data theft and its effects. Any receiver of organ transplants may be aware of the difficulties of exchanging organs, the need for (sometimes) lifelong medication, and even recipients of interventions considered routine and minor, like tooth implants and eye laser surgery, may have tasted some of the difficulties of adaptation. No implant or transplant works like the natural thing. It is at this point that the hubris of "conscious design" shines through.

The reduced mechanical vision of a human being as a set of algorithms, a vehicle of spare parts, may be a symptom of our technological age, just as scientific models in the past have often been but a reflection of the general worldview of the era they came about in. The question really is how many technological

29 See Tamem Mobayed, *Immortality on Earth: Transhumanism through Islamic lenses* (Yaqeen Institute for Islamic Research: n.p., 2017): 18ff.

30 Mobayed, *Immortality on Earth: Transhumanism through Islamic lenses*, 25.

31 Brett Wingeier, "How Are Brain-Machine Interfaces Being Used In Medicine Today?" *Quora*. Accessed September, 18, 2018, <https://www.forbes.com/sites/quora/2018/02/05/how-are-brain-machine-interfaces-being-used-in-medicine-today/#5eb0e6742e87>, and Keck Futures Initiative. *The Informed Brain in a Digital World: Interdisciplinary Research Team Summaries*. IDR Team Summary 7: What are the limits of the Brain-Computer Interface (BCI) and how can we create reliable systems based on this creation. Washington D.C.: The National Academies Press, 2013. www.nps.edu.

“enhancements” or gadgets the human body can sustain. And does it really advance humankind, or even the random individual, to be able to see infrared, turn fingers into flash drives, hear colours, orient himself by radar or be able to align himself with magnetic fields?³² Having natural limbs replaced voluntarily with no medical indication by high tech fiber limbs may not be so conducive after all, if trauma, ongoing phantom pain, inflammations and other complications are taken into consideration.

So how does human intellect compare to AI? Is there a litmus test for ultimate comparison? For the time being, it seems no scientist can, with good conscience, claim to know how the human brain or intellect really works. Ascribing the entire process of thinking to the brain may turn out to be too reductive a view after all. How about the role of the senses in communicating sensations to the brain, for instance? The dimensional importance of the human body experience and its limitations for the process of thought and personhood? The indispensability of previous information to initiate the process of thinking?

As Jensen aptly puts it, “Transhumanism, then, does not get beyond human nature, as if it sought some good in which human nature has no share. Rather, transhumanism misconceives human nature. It supposes that human nature is simply disembodied intelligence, which can be transferred from a body to a computer, and which can be elevated in unforeseen ways”.³³

Transhumanists go wrong supposing that the personality of a person, the self, is confined to the brain. This is in no way meant to be dismissive of scientific advances. Bits and pieces of information add up, for sure. But will we ever be able to understand the human being and his intellect in all their complexity? Or even the brain? And the relationship between both? And is it not that any AI is always dependent on the algorithms it is fed with, logically? So how could we expect AI to become independent; to acquire its own personality? Sequences of 1 and 0 cannot even approximately mimic the complex process of human thought.

The idea of singularity, that point of time where human and machine merge, sounds like the ultimate eschatological vision of a materialist mindset. “And they lived happily ever after”, however, is hardly a feasible notion by which to run a society. Transhumanism’s implications for societal justice have been discussed elsewhere.³⁴

32 Bob Parks, “Go Hack yourself * Not really,” *Popular Science*. (September 2015): 60-63. Accessed September, 15, 2018. <https://www.popsci.com/tags/september-2015>.

33 Steven J. Jensen, “The Roots of Transhumanism,” *Nova et Vetera*, English Edition 12, no. 2 (2014): 525.

34 Pilsch, *Transhumanism*, 16ff.

While parts of the transhumanist movement claim to be democratic in that progress shall be secured for all; others stipulate that there will ultimately be two human races; the cyborgised ‘enhanced’ and the unenhanced ‘natural’, a division reminiscent of a master-slave arrangement. It is quite obvious how power will be distributed in this vision, as “unenhanced” humans will seem to the “enhanced” like the intellectually disabled.³⁵ Transhumanists postulate that post-humans³⁶ or neohumans³⁷ are future beings “whose basic capacities so radically exceed those of present humans as to be no longer unambiguously human by our current standards”.³⁸

Uploading the human mind on data carriers is, in transhumanist circles, often presented as the ultimate end of dying and limitation of the mind through matter. Transhumanist visions declare the human body to become obsolete. A number of rational problems exist in this scenario that may deserve scrutiny. It is worth mentioning that trying to overcome the human’s limitation through the (ageing, decaying, dying) body by replacing the limited material body through limited material data carriers (that may just as well be spoiled, corrupted, or lost) does not offer any change or progress to the state of things – if the material limitation is your point of concern. It has been pointed out that whatever will be uploaded will be nothing more than inflexible data, memories, perceptions at a point in time, but never the personality of the person. It would be a fallacy to think that the mind is but the software of the brain. How about the implications of the mind-body-relation? In Islamic terms, neither *nafs* nor *rūh* will be part of the endeavour. But what is even more interesting here is that, in order to develop the scenario of overcoming the limitation of the human through his body, you need to acknowledge that there is more to the human being than just matter. It is intellectual intersections like this that are apt to prove the absurdity of the ultimate goal – provided there are no other agendas taking a free ride within the movement and promoting it for that purpose.

The idea of gradually ‘augmenting’ human existence through cyborgisation is just as unfeasible. Apart from the technical limitations and the ethicalities of it, there will be a time where human gives way to machine. How many cyborg elements can the human body sensibly sustain? There will be a turning point where the human dies, where the soul leaves the body, where personality is lost, and only the machine remains.

35 Schneider, “Future Minds,” 3.

36 Schneider, “Future Minds,” 3.

37 Benedikter and Siepmann, “Transhumanism,” 47.

38 Nils Bostrom, *The Transhumanist FAQ* (World Transhumanist Association. 2003), 5.

Apart from the technicalities, the ethicalities of AI and, more particularly, robots are increasingly discussed in specialized and popular articles. One may assume that robots are increasingly pushed to take over human tasks, such as nursing, and even replace sex partners. The dehumanising impact this development has is evident; the public space given to the discussion may also have the effect of framing the next step ahead; conditioning the public into the ‘inevitability’ of robotic use and cyborgisation.

Volitional Evolution

Another supposition of transhumanism is that human beings evolved from ‘lower’ life forms and can, with the help of technological advances of our and the coming age, opt for volitional evolution. They can – and should – bring about their own evolution.

Evolutionism, particularly in its Darwinian form, is prevalent in public awareness and policy, academic thought, literature and science worldwide. The (Darwinian) theory of evolution has, since the publication of Darwin’s *The Origin of Species* in 1859, seen an astonishing, groundbreaking career, by far transgressing its being a scientific model used in the natural sciences. Darwinism underlies modernity, is at the core of nearly every branch of science and thought, literature and art³⁹; the link between neoliberalism as a prevalent model of societal organisation and social Darwinism can hardly be denied. The theory, its workability as a scientific model, and all of its implications have been thoroughly discussed.⁴⁰

The reception of Darwinist evolutionism in the Islamic world is, for sure, multifaceted. While being taught (uncritically) at most universities in the Islamic world through imported curricula, Muslims’ reception of the theory varies from outright refusal, attempts at reconciliation with the tenets of Islamic faith, metaphorical interpretation of the texts of the Qur’an and Sunnah, or outright denial of Islamic doctrine in favour of evolutionism.⁴¹

39 See Michael Ruse, *Darwinism as Religion: What Literature Tells Us About Evolution* (New York: Oxford University Press, 2017).

40 See Ahmed Subboor, “Islam, Evolution and Darwinism” 2017, accessed August, 10, 2018. <https://www.youtube.com/watch?v=riqCx84rhfY>.

41 For detailed discussions on this point see Alper Bilgili, “An Ottoman Response to Darwinism: İsmail Fennî on Islam and Evolution,” *British Journal for the History of Science* 48, no 4 (2015): 565-82; The work of Nidhal Guessoum, *Islam’s Quantum Question Reconciling Muslim Tradition and Modern Science* (London and New York: I.B. Tauris, 2011); “Islam and Science: The next phase of debates,” *Zygon* 50, no.4 (2015): 854-876; “Islamic Theological Views on Darwinian Evolution” *Oxford Research Encyclopedia of Religion*. Doi10.1093/acrefore/9780199340378.013.36 and Rana Dajani, “Islam and Evolution: Is there a controversy?” Lecture given at The Faraday Institute for Science and Religion, February 2015, accessed September 10, 2018. https://www.youtube.com/watch?v=etP_YJ5jWsY.

For the purpose of this paper, we may state that transhumanism in its full scope of volitional evolution, i.e. self-designed, voluntary development of the human race, cannot be accepted without evolutionism as an ideological basis. This may be exactly the point of concern for most Muslims. While the idea of evolution to the understanding of development of different species, their adaptation and change in dependence of their environment may be a point of debate, the evolution of the human being from ‘lower’ life forms is not commensurable with the texts of the Qur’an and Sunnah. The creation of the first human being, Adam (peace be upon him), is explicitly described in the Qur’an (Sūrat al-Baqarah 2:31ff); Adam and Eve are explicitly addressed as persons, with no room for allegorical interpretation within the framework of classical scholarship.⁴²

Importantly, Darwinian evolutionism cannot be divorced from eugenics if applied to humankind, and criticism goes that the connection to racist ideologies is not far away either.⁴³

Enhancement – or Just Modification?

The discussion of modification or enhancement technologies involving physical, intellectual, or behavioral aspects, could, by definition, include manipulation of the immune system and age-related medical conditions; physical manipulation could refer to the use of the growth hormone for short-stature children and cosmetic surgery, while intellectual and behavior manipulation could include the use of drugs to improve memory, mental concentration, and cognitive ability, and behavior.⁴⁴ Transhumanists use the term enhancement in its genetic as well as pharmacological and morphological connotations.⁴⁵

The notion ‘enhancement’ deserves attention. It is questionable whether the term is acceptable from the Islamic point of view. The Islamic worldview, through the texts of the Qur’an and Sunnah, has stipulated that Allah s.w.t has created the human being in his best shape.

لَقَدْ خَلَقْنَا الْإِنْسَانَ فِي أَحْسَنِ تَقْوِيمٍ

“Verily, we created the human being in his best shape” (Sūrat al-Tīn, 4).

To think of the necessity of an enhancement of this shape and describe it as

42 As is apparent from the Tafsir of Al-Qurṭubī and Ibn Kathīr, among others.

43 Subboor, “Islam, Evolution and Darwinism.”

44 Shahid Athar, “Enhancement Technologies and the Person: an Islamic view,” *Journal of Law, Medicine & Ethics* 36, no. 1 (Spring, 2008): 59.

45 Sorgner, *Transhumanismus*, 40ff.

‘faulty design’ from an Islamic point of view would mean to suggest that the work of the Creator is faulty, presupposing His imperfection. The idea of *taḥsīn al-nasl*, which may be translated as “enhancement of offspring” has been discussed in Islamic scholarship, but not under the consideration of its link to transhumanism. Marḥaba distinguishes between the scientific genetic attempt at enhancement through elimination of illnesses or those carrying them, or by hindering the carriers of certain traits from reproduction, and enhancement through the improvement of living conditions.⁴⁶ He defines eugenics (*taḥsīn al-nasl*) as “Any method, the application of which brings about wanted traits in the offspring that did not originally exist; and annihilates unwanted traits that do exist”.⁴⁷

Islamic culture purports among the marriage customs of Jahiliyya, the pre-Islamic time of ignorance, the marriage of *Istibdāʾ*, where the husband sends his wife to conceive from a person with particular qualities to secure these for ‘his’ offspring.⁴⁸ Islamic legislation has prohibited this form of ‘enhancement’. The pre-Islamic Arabic tribes also envisaged *taḥsīn al-nasl* through the choice of wet nurses, where non-Arabic maid servants did not qualify to nurse their children.⁴⁹

The Prophet (peace be upon him) advised a man to marry a woman for her good religious practice, which clearly emphasises nurture over nature, while beauty, descent and wealth remain acceptable reasons, but are not encouraged.⁵⁰ People are advised to marry from far, so as to avoid weak progeny.⁵¹

Due to the high percentage of hereditary diseases as a result of consanguineous marriages (between first cousins), some Gulf countries have introduced recommended or even mandatory pre-marital genetic screening. Contemporary Muslim scholars have controversially discussed questions of genetic screening before marriage.⁵² However, any forms of intervention that clearly cross the red line of prohibitions in Islam, such as reproduction outside of wedlock, to

46 Ismāʿīl Ghāzī Marḥaba, “Taḥsīn al-Nasl. Dirāsah fiqhīyah ṭibbiyah,” *Ḥawliyat kulliyat Dār al-ʿulūm*, Al-Qāhirah (2012): 255f.

47 Marḥaba, “Taḥsīn al-Nasl,” 256.

48 Marḥaba, “Taḥsīn al-Nasl,” 260; Al-Bukhārī, *Ṣaḥīḥ*, ḥadīth no. 5127.

49 Marḥaba, “Taḥsīn al-Nasl,” 268.

50 Al-Bukhārī, *Ṣaḥīḥ*, ḥadīth no. 5090; Muslim, *Ṣaḥīḥ*, ḥadīth no. 1466, Marḥaba, “Taḥsīn al-Nasl,” 270.

51 Marḥaba, “Taḥsīn al-Nasl,” 271.

52 Dariusch Atighetchi, *Islamic Bioethics: Problems and Perspectives*, International Library of Ethics, Law, and the New Medicine 31 (Dordrecht: Springer, 2007), 254ff; Hassan Chamsi-Pasha and Mohammad Ali Al-Bar, *Contemporary Bioethics: Islamic Perspective* (Dordrecht: Springer, 2015), 189ff.

volitional evolution are negatively received.⁵³

Transhumanists frequently lament the ‘faulty design’ of human beings (Jensen, 2014). But human imperfection, if perceived as such, is by no means a mistake; it is an intended attribute in Allah’s creation, the purpose of which is to make the human being recognize and ponder on his weakness and dependence on his Creator. In addition, comparison with the abilities of other creatures, their physical strength and senses, helps to appreciate creation and the own place in the universe.

وَحَلَقَ الْإِنْسَانَ ضَعِيفًا

“Verily, the human being has been created weak” (Sūrat Al-Nisā’, 4:28).

Enhancement or Body Modification?

While the term enhancement seems to provide a positivist framing for alterations made to the human body, the term ‘body modification’ suggests more neutrality. An ‘enhancement’ is supposedly always to the better, while any body modification could turn out to be to the aid or disaster of the human being involved. Body modifications change from time to time and place to place in type and societal and cultural acceptability.

Rembold points out that these definitions are “linked to socio-cultural norms and ideals, which can vary over time and between countries”.⁵⁴ She advocates replacing the term human enhancement with body modification as it is more neutral and encompasses different kinds of modifications, be they cultural, physical, psychological or neurological.⁵⁵ As a matter of fact, the term enhancement may already serve to positively frame the transhumanist discourse, where more critical investigation may be appropriate.⁵⁶ Djati points out that advocates of enhancement technologies sometimes “prefer the term “modification” and “enablement” over “enhancement””; defend and promote rigorous, independent safety testing of enabling technologies; as well as affordable, universal access to these technologies”, so as to “use language which provides a minimum of offense, and advance the public interest in so-called “human enhancement technologies””.⁵⁷

53 Chamsi-Pasha and Al-Bar, *Contemporary Bioethics*, 198f.

54 Stefanie Rembold, “Human Enhancement”? It’s all about ‘Body Modification’! Why We Should Replace the Term ‘Human Enhancement’ with ‘Body Modification’,” *Nanoethics* 8 (2014): 307.

55 Rembold, “Human Enhancement?,” 307.

56 On the mechanisms of framing see Elisabeth Wehling, *Politisches Framing: Wie eine Nation sich ihr Denken einredet - und daraus Politik macht* (Berlin: Ullstein, edition medienpraxis, 2018)

57 M. Sasmito Djati, “Beyond Biotechnology: Human Enhancement Technology and Pursuit for Happiness,” (An Islamic perspective of bioethics case study) *Jurnal Pembangunan dan Alam Lestari* 1, no. 1 (2010): 6.

How about body modifications in an Islamic context? As it is hardly possible to tackle the multitude of available and potential body modifications or enhancements in this paper, I will try to discuss the framework rather than the detailed cases. In the contemporary Islamic legal context, any newly arising case that has not taken an explicit rule in the texts of the Qur'an and Sunnah is subject to *ijtihad*, the process of derivation of legal rules from the sources. It is beyond this paper to explain the entire process, its framework and conditions. In the bioethical context, reference is generally made to legal maxims as well as *maqāṣid* or the higher objectives of the *sharī'ah*.

The theory of *Maqāṣid al- Sharī'ah*, formulated by eminent Muslim scholars of the law and its theoretical foundations, such as Imam al-Shāḥibī, al-ʿIzz b. ʿAbd al-Salām, Al-Ghazālī and, the most contemporary, Muḥammad Ibn ʿĀshūr, to name but a few, stipulates that Islamic legal rules, under holistic application, realise the preservation of five essential values; the preservation of Islam (*dīn*), life (*nafs*), the sound mind (*ʿaql*), offspring (*nasl*) and property (*māl*). This realization basically takes place by "acquiring benefits and warding off harms, with regard to this life and the next (hereafter)" on different levels; essentials (*darūriyāt*); needs (*hājjiyat*) and embellishments (*taḥsīniyāt*).⁵⁸

Contemporary Muslim bioethicists usually discuss bioethical issues in the maqasidic framework. This approach has positive as well as negative repercussions. While *Maqāṣid al- Sharī'ah* seem to provide a flexible framework that allows to generally discuss any innovation in the bioethical or any other field with minor intellectual effort and no need to indulge in specialised knowledge; the frequency of resorting to it itself may contribute to a paradigm shift in perceived normality. Setia has recently pointed out the usage of *maqāṣid* and *maṣlaḥah* by what he refers to as "surreptitious utilitarianism".⁵⁹

Related to the maqasidic framework is also the reference of legal maxims; with maxims like "Warding off harm has priority over acquiring benefits"; "Necessity renders the prohibited lawful"; and "Necessity must be assessed proportionately."

The Qur'an does not mention human body modifications directly. Sūrat al-Nisā' 4: 119 refers to slitting the ears of cattle as an act of "changing creation"⁶⁰; something Shayṭān will order human beings to do to mislead them. Texts of the

⁵⁸ Nyazee, *Islamic Jurisprudence*, 202ff.

⁵⁹ Adi Setia, "Freeing Maqasid and Maslaha from Surreptitious Utilitarianism," *Islamic Sciences*, 14, no. 2 (2016): 127 -158.

⁶⁰ "And surely I will lead them astray, and surely I will arouse desires in them, and surely I will command them and they will cut the cattle's ears, and surely I will command them and they will change Allah's creation. Whoso chooses Satan for a patron instead of Allah is a loser and his loss is manifest."

Sunnah explicitly forbid some types of body modifications that were available at the time of the Prophet Muhammad, peace be upon him, such as tattoos, hair extensions and the filing of teeth. The hadith explicitly extends the curse to those (women) engaging in these modifications as “changers of the creation of Allah”.⁶¹ The changes referred to here are, as compared to both contemporary possibilities and the “promises” of transhumanism, minimalistic. So why have these (rather minor) modifications been prohibited?

Although these modifications may, but do not necessarily harm the human being in his physical state, they seem to have been prohibited because they pretend something that is non-existent, an augmented appearance or reality of the human body, so to speak. For our context, as long as there is no explicit text in the sources of law, the Qur’an and Sunnah, the rationale (*‘illah*) and wisdom (*ḥikmah*) of the Creator has to be inferred. The attempt to interfere with the Creator’s prerogatives expresses the human being’s ingratitude. From an Islamic perspective, this is sufficient ground to block further unwarranted ‘enhancements’ or modifications. In addition, the human body is an entrusted good, an *amānah*. It is not the human’s personal possession. An *amānah* that is to be returned in its best, unaltered shape. It is the human’s responsibility to take care of his body, not neglect or mutilate it, so as to return it to its Creator.⁶²

This is not to say that every body modification or ‘interference’ into the natural state is impermissible. It is rather that any body modification requires a legitimate Islamic legal reason. The sunnah of the Prophet Muhammad (pbuh) stipulates that five ‘body modifications’, if the term is correct, are *sunan al-fiṭrah* and demanded: Male circumcision, shaving pubic hair, trimming the moustache, clipping the nails, and depilating the hair of the armpits.⁶³ The sunnah reports of the Prophet’s permission granted to ‘Arfajah b. As‘ad who lost his nose in battle in pre-Islamic times to use a gold prosthesis, an exception to the general prohibition for men to wear gold. The previously used silver had produced an awful odour.⁶⁴ Permissible interventions (‘body modifications’) may consist of the restoration of a lost original state, a health disturbing (rather than a ‘cosmetic’) deviation from the common norm that may ask for and come under the rule of medical treatment, the preservation of the body’s cleanliness and shape.

Loss of limbs, for example, would fall under this category. In application of the principles of necessity (“Necessity must be assessed proportionately” *Al-*

61 Al-Bukhārī, *Ṣaḥīḥ*, ḥadīth no. 4886; Muslim, *Ṣaḥīḥ*, ḥadīth no. 2125.

62 Atiḡhetchi, *Islamic Bioethics*, 35.

63 Al-Bukhārī, *Ṣaḥīḥ*, ḥadīth no. 5891.

64 Al-Tirmidhī, *Sunan*, ḥadīth no. 1770.

darūrah tuqaddaru bi-qadarihā), any envisaged ‘restoration’ should, however, be as close to the original, natural state as possible, so as to avoid the imposition of an “augmented reality”. High technology J-shaped carbon fiber blades as a replacement for amputated legs may not fall under this requirement.

Is there, then, a difference between conventional hearing aids, for instance, and cochlear implants? Between wearing glasses or lenses and eye laser surgery? Given that both methods are safe and do not impose any harm on the patient? The guiding rule should be to avoid harm as well as changes surpassing natural conditions and capabilities as much as possible. Although a framework for assessment exists, any modification will be subject to *ijtihad* in its own right, considering its objectives, circumstances and means of realization.

One of the dilemmas in this discussion is to tackle the shift in perceived ‘normality’. With the growing number of available enhancements or body modifications, it will be perceived as ‘normal’ to avail one’s self of them. Definitions of ability as well as disability may change. In the future, “unenhanced” may become a synonym of “disability”. As Lee accurately expressed, “an operation to enhance is reconstructed as an operation to treat”.⁶⁵ As precedent cases have shown,⁶⁶ the Islamic legal discussion on enhancements may just follow suit, accepting and legalizing the enhancement business and its mechanisms.

Mechanical, biological regenerative measures should be preferred over electronic ones requiring interfaces with the human brain; as this may open the doors for abuses of control.

Wherever no legitimate Islamic legal reason exists to transgress the human *ḥurmah*, the inviolability of the human being; the action of ‘enhancement’ becomes illegitimate. (In other words, *ḥurmah* is the basic rule from which exceptions can be made for a legitimate reason; and under the observation of guidelines.). From an Islamic point of view, any modification could be classified into a permissible restoration or an impermissible change of creation.

Of the different forms of advocated ‘enhancements’, it is probably the genetic option that has been most discussed in Islamic bioethical literature. Initially, with the breaking news of Dolly the sheep and the forcefully emerged prospects of human cloning at the end of the 1990s, contributions by Islamic scholars were

65 Joseph Lee, “Cochlear Implantation, Enhancements, Transhumanism and Posthumanism: Some Human Questions,” *Science Engineering Ethics* 22 (2016): 76.

66 Setia, “Freeing Maqasid,” interim.

mostly vehement in banning any attempt at cloning human beings.⁶⁷ With the passage of time, a plethora of possible applications of genetic technologies have been discussed, among them GMOs for human and animal consumption, genetic fingerprinting, (human embryonic) stem cells, their harvesting and usage, pre-marital genetic screening and its implications, all with divergent views. Permissible voices, commonly positioning themselves within a maqasidic framework, may in some cases border at eugenic statements, but do generally argue within the framework of medical treatment in Islam.⁶⁸ Openly eugenic statements are solitary views. The 15th Meeting of the Fiqh Council, for instance, has taken a clear decision to ban any genetic change under the pretense of enhancing humankind.⁶⁹ However, the possibility of “revising” the process of creation by bringing about a ‘more developed’ human being through volitional evolution did not even enter discussion panels, given its incommensurability with basic Islamic tenets.

Eugenics seems to be an unneglectable part of transhumanism. The question here is whether eugenics is subscribed to in positive or also in negative terms; i.e. relate to the promotion of certain traits through intervention only, or the attempt to annihilate the unwanted traits with different means as well? Jensen reminds that “It is worth recalling that the old eugenics began with a positive call for improvement but quickly slid into a negative call to eliminate the unfit”.⁷⁰ The current discussion on pre-marital genetic screening in the Islamic world, for instance, or the permissibility of abortion of genetically ‘defective’ embryos, may turn from an optional choice to a ‘moral liability’.

Eugenics in the modern era is indivisibly linked to racism and the misconception of a superior white race. The link between Darwinist evolutionism and eugenics may be more or less subtle. Sutton (2015) sees the difference between the older eugenics movement and transhumanism in that the eugenics movement called for state control to bring about betterment of the population, while the latter promotes a liberal agenda of individual choice.⁷¹ The global dimensions of a broadened transhumanist discourse with regard to race and gender are definitely in need of discussion.

Siti Nurani Mohd Noor calls for being “realistic” vis-à-vis scientific and technological advancements and the accumulating ethical issues. Focus needs

67 See Anke Bouzenita, “Changing Creation or Harnessing Nature: The Reception of Biotechnology in the Islamic World,” *Islamic Studies* 48, no. 4 (Winter 2009): 499-523.

68 See Marḥaba, “Taḥsīn al-Nasl,” 285ff.

69 Marḥaba, “Taḥsīn al-Nasl,” 285.

70 Jensen, “Roots of Transhumanism,” 517.

71 Sutton, “Promethean Hubris,” 118.

indeed to be not on the individual person, but “encompass all implications of such a technology on the human race and human societies”.⁷² It is timely to consider the background of difference in worldviews, materialistic vs Islamic, for this matter.

Transhumanists generally state as their goal ‘living the good life’. The term generally lacks definition. What does “the good life” mean? Habermas aptly criticises: “But with the acceleration of social change, the lifespans of these models of the good life have become increasingly shorter”.⁷³

Transhumanists seem to suggest that ‘all will be good’ in the end by transgressing the physical limitations human beings are subject to. There is no evidence to back this supposition, just like there is no evidence that physical limitations can be overcome in the envisaged way – even if we suppose that attempts *ought* to be made.

A pervasive feature in “transhumanist rhetoric” is that “it tends to be hyperbolically optimistic, whether what is being discussed are enhanced physical, cognitive, or emotional capacities”.⁷⁴ The discussion of genetic, pharmacological, cyborg-enhancement or morphological enhancement⁷⁵ are often so devoid of any mention of already well-known negative side effects that one wonders how these can have escaped the transhumanists’ attention. Referring to the pervasiveness of pharmacological enhancement techniques in society, Sorgner quotes a German health report for 2009, according to which 5% of all employees between 20 and 50 years of age consume pharmaceuticals to enhance their well-being and performance,⁷⁶ without mentioning causes and effects. Given the capitalist framework of human commodification we already live in, prospects of further “volitional evolution” along these lines certainly do not augur well.

Muslim Voices on Transhumanism

Muslim responses and discussions of transhumanism that transcend the particular cases coming under its tenets are, to date, rather scarce. Abdul Hakim Murad (Timothy Winter) in a 2012 lecture, after discussing Habermas, argues that the most pressing issue for the world now is not an alleged “clash of civilizations” or “Islam and the West”: “These are side shows. The real issue is traditional humanity face to face with a really unprecedented ability to edit our species so that something else emerges”.⁷⁷

72 Siti Nurani Mohd Noor, “Enhancement,” *Oxford Encyclopedia on Islamic Bioethics*, 2018.

73 Jürgen Habermas, *The Future of Human Nature* (Cambridge: Polity Press, 2003), 2.

74 Porter, “Bioethics and Transhumanism,” 244.

75 See for instance Sorgner, *Transhumanismus*.

76 Sorgner, *Transhumanismus*, 52.

77 Abdul Hakeem Murad (Timothy Winter), “Transhumanism and Islam,” 2018. <https://www.youtube.com/watch?v=xOWrrpQVco> Accessed 5/11/2018

Interestingly, the available Muslim contributions to transhumanism prevalingly attempt at reconciling Islam with transhumanism, either in content or terminology,⁷⁸ rather than deconstructing transhumanist thought.

Mobayed, at the end of his discussion of transhumanism through an Islamic lens, calls it short-sighted to reject the possibility to formulate an “Islamic transhumanism”.⁷⁹ The questions that, in his view, need to be grappled with by Islamic scholars, such as those around genetic intervention, do not make up transhumanism as another expression of a materialistic worldview; these are but facets which have been attended to, unfortunately rather separated from that worldview and its implications. Mobayed, now changing his approach, argues that something similar to Islamic transhumanism already exists. Contrary to the contemporary secular branch of transhumanism, “Islamic transhumanism calls on believers to improve and purify their perceptions by way of God-consciousness (...). It might be argued that a Muslim’s transhumanist goals are directly tied to his devotion to God, rather than mastery of secular science. This then embodies the fundamental difference between Islamic transhumanism and secular transhumanism.”⁸⁰ In spite of the preceding critical and fruitful discussion of some of the aspects of transhumanism, the author unfortunately and maybe unconsciously contributes to framing the acceptance of the term as Islamically acceptable.

In “Transhumanism and the Body” (Mercer and Maher, 2014), Mavani discusses aspects of transhumanism and Islam. Knowing that basic tenets of transhumanist thought, like attaining eternal this-worldly life (beyond divine intervention), are not reconcilable with the Islamic faith; he tries to endorse the weakened version of life extension rather than immortality. Referring to Mu’tazili thought, the theological approach underpinning the Imami Shia school, as being more flexible, he advances positions and discredits any possible resistance to transhumanist ideas as fundamentalist, inimical to science and not worthy of discussion:

“Thus, one can anticipate that the Salafis, Wahhabis, and Hanbalis will have the strongest resistance to these new technologies, for they will view them as attempts to imitate divine creation, manipulate creation, or interfere with God’s creation and claim the status of co-creators. In contrast, the theology that allows the use of human reasoning during the deliberative process will be better situated to engage in *ijtihad* (fresh interpretation by reexamining the revelatory sources) to deduce legal and ethical judicial decisions via reliance on the revelatory texts’

78 Mobayed, *Immortality on Earth*; Mavani, “God’s Deputy”; Musa, “A Thousand Years, Less Fifty.”

79 Mobayed, *Immortality on Earth*, 25.

80 Mobayed, *Immortality on Earth*, 25f.

general principles instead of opting to err on the side of caution and thus prohibit these new technologies.”⁸¹

Genetic (and possibly any other) modification can severely upset the balance nature and the human with it have been created in (Quran 55:7-9 (*al-mīzān*); “and everything We created in order (*qadar*)”; and this argument should not, as Mobayed aptly put it; be dismissed as “bioconservative fearmongering”.⁸² There are enough precedent cases in recent human history to teach us humbleness and prudence in this respect. It is therefore not wise to delegitimise and stigmatise any Islamically-based critique on transhumanism in advance.

Unfortunately, Mavani wrongly positions Mu‘tazili thought with regard to the authority of the texts, just like he discredits Sunni legal thought and (contemporary) ijtihad through examples of extreme ridicule. Although this seems to be a common fallacy in some contemporary contributions on bioethics, there is no difference worth mentioning between Mu‘tazili, Ash‘ari and Mātūrīdi thought with regard to the authoritativeness of the texts of revelation and their interpretations. None of these schools did or do disassociate themselves from the injunctions of “divine command”.⁸³ What these theological schools attempted to do was to discuss the role of the human mind with regard to the “divine command”, and whether it is able to arrive at conclusions with regard to “*ḥasan*” (good) and “*qabīḥ*” (bad) prior to the revelation of rules, or in the absence of their communication. They did not set out to declare human ratiocination as being above “divine command” or giving it preference should the human mind arrive at different conclusions. The implications of the difference of theological approach for detailed rules of fiqh (Islamic law) can happily be dismissed as very minor.⁸⁴

Conclusion

As compared to the discussion of transhumanism as a philosophical movement in the Western societal and academic context, the preoccupation with it in corresponding Islamic circles is neglectable so far, in spite of obvious attempts to bring about allied transhumanist movements within all the major religions.

81 Mavani, “God’s Deputy,” 80.

82 Mobayed, *Immortality on Earth*, 15.

83 See Maryam Al-Attar, “Food Ethics: A Critique on some Islamic Perspectives on Genetically Modified Food,” *Zygon Journal of Religion and Science* 52, no. 1 (2017): 53-75.

84 Anke Bouzenita, “Bioethics,” In *The Oxford Encyclopedia of Philosophy, Science, and Technology in Islam*. *Oxford Islamic Studies Online*, 2015, <http://www.oxfordislamicstudies.com/article/opr/t445/e30>

This may be due to the obvious disparage between tenets of transhumanism and Islam at a very basic level, as explained above. (However, if we are to understand transhumanism as a convergence of different philosophical underpinnings and technological possibilities, such as evolutionism; genetic enhancement or body modification in its different forms; these questions have been thoroughly discussed, if not under the umbrella of transhumanism.) Does this mean that Muslims need not bother? No. In a globalised world, influences of this movement and its repercussion will be felt in any part of the globe, in the non-Islamic as well as the Islamic world. As Mobayed puts it; “we are all likely to be affected by it in one way or another”.⁸⁵

We may observe that it is in our age that different forms of enhancement, as described and discussed above, converge; as does the further development and prevalence of AI. From this perspective, all the ingredients of the transhumanist recipe seem to be available now or in the foreseeable future. This does not necessarily mean that singularity is going to happen as envisaged by transhumanists. What IS perceivable, and this is the main raiser of concern, is the growing public acceptance of or, maybe we shall say oblivion, indifference, to these ingredients, their ethical problems and societal consequences. This growing acceptance, brought about in a globalised, materialist system that sets the commodification of just about anything as default; from personal body modification (tattoos, piercing, cosmetic surgery, gender change surgery and consecutive treatment, chipping), drug abuse and the growing call and acceptance of legalisation, in spite of known risks and dangers (from alcohol to opiates to ‘mind-enhancing’ and controlling drugs) to the obliviousness with which personal data is willingly rendered to data krakens; to the growing reliance on electronic currency; will not only serve as blurring and obliterating the boundaries between the sexes, between man and machine; between human intelligence and AI, between natural and ‘augmented’ reality. They also make humankind less and less distinctive, accountable, and more and more controllable.

Rather than being an entirely new idea, it is rather a conglomerate of old ideas in technologically backed dystopian garb, and it may be described as an *Ersatzreligion*, a substitute religion without Creator. Transhumanism is a para-religious or pseudo-religious worldview, in that it tries not to answer the question of afterlife (“What happens when I die?”), but rather to put an end to death and to asking the question. Questions on the beginning and end of life are shifted to a different narrative. In this narrative, it is the human who ‘creates’, with the help of technology, ever-lasting life.

There is no doubt that a genetically or otherwise modified human being is still a human being endowed with rights and duties, as long all of the aforementioned

85 Mobayed, *Immortality on Earth*, 8.

features of *rūh*, *nafs* and *‘aql* exist. This does however not imply that it is legitimate to attempt any ‘volitional evolution’. There is also no doubt that genetic or other modifications of human beings will meet natural limits. Contrary to the pervasive *Wissenschaftsgläubigkeit* in transhumanist circles, the human being will not change much in shape and capabilities. He may however be manipulated into thinking that he could, which makes the idea both dangerous and profitable.

Some of the recurring elements of the transhumanist materialist worldview are recurring themes of Western thought. It may be for this reason that transhumanism seems to have most appeal in Western industrialised countries. Attempts to bring about transhumanist movements within the world religions exist. But obviously, the agenda can most successfully be promoted in a highly materialistic environment void of spirituality, and where the existence of technological means and a general affluence allow people not to be struggling for the necessities of life.

Transhumanism as an ideology reduces human existence to mere algorithms that can be hacked, altered, improved. Transhumanism is not an entirely new idea. It is an assembly of old ideas with old fallacies. To answer the initial question; transhumanism is indeed a dangerous idea – but not in the (rhetorical) sense that the question was molded in. Its danger does not consist in it presenting an alternative for new, more liberated, more fulfilling forms of human life that endanger elite interests. No. Its danger consists in deluding people into willingly exposing themselves to more and more control over their lives and manipulation of their bodies and minds based on irrational suppositions and fake promises. Instead of being enslaved to death, as transhumanists claim, humankind may find itself enslaved by the lure of this-worldly eternal life.

References

- Al-Attar, Maryam. "Food Ethics: A Critique on some Islamic Perspectives on Genetically Modified Food." *Zygon. Journal of Religion and Science*. 52, no. 1 (2017): 53-75.
- Al-Bukhārī, Muḥammad b. Ismā‘īl. *Ṣaḥīḥ al-Bukhārī*. N.d, accessed August 30, 2018. <http://shamela.ws/browse.php/book-1681>
- Al-Nawawi, Abū Zakariyā’ Yaḥyā b. Sharaf. *Hadith Nawawi*. N.d., accessed October 16, 2018. <https://sunnah.com/nawawi40#4>.
- Al-Qurtubī, Abū ‘Abd Allāh Muḥammad b. Aḥmad. *Al-Jāmi‘ li-aḥkām al-Qur’ān*. N.d. accessed October, 16, 2018. <http://quran.ksu.edu.sa/tafseer/>
- Al-Shāṭibī, Ibrāhīm b. Muḥammad *Al-Muwāfaqāt*. Al-Qāhira: Dār Ibn ‘Affān, 1997.
- Al-Tirmidhī, Muḥammad b. ‘Īsā. *Sunan al-Tirmidhī*. n.d. accessed October, 16, 2018. <http://shamela.ws/browse.php/book-7895>.

- Athar, Shahid. "Enhancement Technologies and the Person: an Islamic View." *Journal of Law, Medicine & Ethics* 36, no. 1 (Spring, 2008): 59-65.
- Atighetchi, Dariusch. *Islamic Bioethics: Problems and Perspectives*. International Library of Ethics, Law, and the New Medicine 31. Dordrecht: Springer, 2007.
- Benedikter, Roland and Katja Siepmann. "'Transhumanism': A New Global Political Trend?" *Challenge* 59, no. 1 (2016): 47-59.
- Bilgili, Alper. "An Ottoman Response to Darwinism: İsmail Fennî on Islam and Evolution." *British Journal for the History of Science*. 48, no 4 (2015): 565-82. doi: 10.1017/S0007087415000618.
- Bostrom, Nils. "A History of Transhumanist Thought." *Journal of Evolution and Technology* 14, no.1 (2005): 1-25.
- Bostrom, Nils. *The Transhumanist FAQ*. World Transhumanist Association. 2003, accessed August 25, 2018, <http://transhumansim.org/index.php/WTA/faq/>.
- Bouzenita, Anke. "Bioethics." In *The Oxford Encyclopedia of Philosophy, Science, and Technology in Islam*. *Oxford Islamic Studies Online*, 2015, <http://www.oxfordislamicstudies.com/article/opr/t445/e30>
- Bouzenita, Anke. "Changing Creation or Harnessing Nature: The Reception of Biotechnology in the Islamic World." *Islamic Studies* 48, no. 4 (Winter 2009): 499-523.
- Chamsi-Pasha, Hassan and Mohammad Ali Al-Bar. *Contemporary Bioethics: Islamic Perspective*. Dordrecht: Springer, 2015.
- Dajani, Rana. "Islam and Evolution: Is there a Controversy?" Lecture given at The Faraday Institute for Science and Religion, February 2015, accessed September 10, 2018. https://www.youtube.com/watch?v=etP_YJ5jWsY
- De Grey, Aubrey. "Radical Life Extension: Technological Aspects." In: *Religion and the Implications of Radical Life Extension*, edited by Calvin Mercer and Derek F. Maher, 13-24. New York: Palgrave Macmillan, 2009.
- Djati, M. Sasmito. "Beyond Biotechnology: Human Enhancement Technology and Pursuit for Happiness." (An Islamic perspective of bioethics case study) *Jurnal Pembangunan dan Alam Lestari* 1, no. 1 (2010): 1-13. University of Brawijaya. Accessed October 10, 2018. <https://doaj.org/article/e076e37654c64448b2dfe311df79fe9e>
- FM-2030 (Fereidoun M. Esfandiary). *Are you a transhuman? Monitoring and Stimulating Personal Growth in a Rapidly Changing World*. New York: Warner Books, 1989.
- Franco, Alexandra M. "Symposium Article: Transhuman Babies and Human Pariahs: Genetic Engineering, Transhumanism, Society and the Law." *Children's Legal Rights Journal* 37, no. 2 (2017):185- 218.
- Fukuyama, Francis. "Transhumanism." *Foreign Policy*, October 23, 2009. <http://foreignpolicy.com/2009/10/23/transhumanism/>.
- Fukuyama, Francis. *Our Posthuman Future: Consequences of the Biotechnological Revolution*. New York: Picador, 2003.
- Guessoum, Nidhal. "Islam and Science: The Next Phase of Debates." *Zygon* 50, no. 4 (2015): 854-876.
- Guessoum, Nidhal. "Islamic Theological Views on Darwinian Evolution." *Oxford Research Encyclopedia of Religion*. Doi10.1093/acrefore/9780199340378.013.36
- Guessoum, Nidhal. *Islam's Quantum Question Reconciling Muslim Tradition and Modern Science*. London and New York: I.B. Tauris, 2011.

- Habermas, Jürgen. *The Future of Human Nature*. Cambridge: Polity Press, 2003.
- Hefner, Philip. "The Animal that Aspires to be an Angel: The Challenge of Transhumanism." *Dialog: A Journal of Theology* 48, no. 2 (September 2009): 158-167.
- Hughes, James. *Citizen Cyborg. Why Democratic Societies must Respond to the Redesigning Human of the Future*. Cambridge, MA: Westview Press, 2004.
- Huxley, Julian. "Transhumanism." *Ethics in Progress* 6, no. 1 (2015): 12-16. doi: 10.14746/eip.2015.1.2. Reprinted from Huxley, Julian. *New Bottles for New Wine*. London: Chatto and Windus, 1957, p. 13-17.
- Huxley, Julian. *Religion without Revelation*. New York and London: Harper and Brothers, 1929.
- Ibn Kathīr, 'Imād al-Dīn Abū l-Fidā'. *Tafsīr Ibn Kathīr*. N.d., accessed October 10, 2018, <http://quran.ksu.edu.sa/tafseer/>
- Jensen, Steven J. "The Roots of Transhumanism." *Nova et Vetera*, English Edition, 12, no. 2 (2014): 515-541.
- Keck Futures Initiative. *The Informed Brain in a Digital World: Interdisciplinary Research Team Summaries. IDR Team Summary 7: What are the limits of the Brain-Computer Interface (BCI) and how can we create reliable systems based on this creation*. Washington D.C.: The National Academies Press, 2013. www.nps.edu.
- Kurzweil, Ray. "Reinventing Humanity: The Future of Human-Machine Intelligence." *The Futurist* (March-April 2006): 39-40; 42-46.
- Lee, Joseph. "Cochlear Implantation, Enhancements, Transhumanism and Posthumanism: Some Human Questions." *Science Engineering Ethics*, 22 (2016): 67-92.
- Marḥaba, Ismā'īl Ghāzī. "Taḥsīn al-Nasl. Dirāsah fiqhīyah ṭibbiyah." *Hawliyat kulliyat Dār al-ʿulūm*. Al-Qāhirah (2012): 249-296.
- Mavani, Hamid. "Islam-God's Deputy: Islam and Transhumanism." In: Mercer, Calvin and Derek F. Maher (eds). *Transhumanism and the Body: The World Religions Speak*. New York: Palgrave Macmillan, 2014, 67-83.
- Mercer, Calvin and Derek F. Maher (eds). *Religion and the Implications of Radical Life Extension*. New York: Palgrave Macmillan, 2009.
- Mercer, Calvin and Derek F. Maher (eds). *Transhumanism and the Body. The World Religions Speak*. New York: Palgrave Macmillan, 2014.
- Mobayed, Tamem. *Immortality on Earth: Transhumanism through Islamic lenses*. Yaqeen Institute for Islamic Research, 2017.
- Mohd Noor, Siti Nurani. "Enhancement." *Oxford Encyclopedia on Islamic Bioethics*, 2018.
- More, Max. *Transhumanism: Toward a Futurist Philosophy*. 1990. Accessed October 15, 2018. <http://www.maxmore.com/transhum.htm>.
- Murad, Abdul Hakeem (Timothy Winter). "Transhumanism and Islam", 2018. <https://www.youtube.com/watch?v=xOWrrRpQVco> Accessed 5/11/2018
- Musa, Aisha Y. "A Thousand Years, Less Fifty: Toward a Quranic View of Extreme Longevity," In: *Religion and the Implications of Radical Life Extension*, edited by Calvin Mercer and Derek F. Maher, 123-133.
- Muslim, Abū l-Ḥussayn b. al-Ḥajjāj. *Ṣaḥīḥ Muslim*. n.d., accessed October 15, 2018, <http://shamela.ws/browse.php/book-1727>.

- Nor, Siti Nurani Mohd. "Human Genetic Technologies and Islamic Bioethics". In: *GenEthics and Religion*, edited by G. Pfeiderer, G. Brahier and K. Lindpaintner, 129–137. Basel: Karger, 2010. (DOI:10.1159/000315608)
- Nyazee, Imran Ahsan Khan. *Islamic Jurisprudence: Uṣūl Al Fiqh*. The Other Press, Kuala Lumpur, 2003.
- Parks, Bob. "Go Hack yourself * Not really." *Popular Science*. (September 2015): 60-63. Accessed September, 15, 2018. <https://www.popsoci.com/tags/september-2015>.
- Pilsch, Andrew. *Transhumanism. Evolutionary Futurism and the Human Technologies of Utopia*. Minneapolis: University of Minneapolis Press. 2017.
- Porter, Allen. "Bioethics and Transhumanism." *Journal of Medicine and Philosophy* 42 (2017): 237-260. Doi:10.1093/jmp/jhx001.
- Quazi, Faisal, Don Fette, Syed S. Jafri, Aasim I. Padela (2018). "Framing the Mind-Body Problem in Contemporary Neuroscientific and Sunni Islamic Theological Discourse." *The New Bioethics* 24, no. 2 (2018) 158-175, DOI:10.1080/2002877.2018.1438835
- Ranisch, Robert and Stefan Lorenz Sorgner (eds). *Post- and Transhumanism. An Introduction*. Peter Lang: Frankfurt am Main. 2014.
- Rembold, Stefanie. "'Human Enhancement'? It's all about 'Body Modification'! Why We Should Replace the Term 'Human Enhancement' with 'Body Modification'." *Nanoethics* 8 (2014): 307-315.
- Ruse, Michael. *Darwinism as Religion. What Literature Tells Us About Evolution*. New York: Oxford University Press, 2017.
- Schneider, Susan. "Future Minds: Transhumanism, Cognitive Enhancement and the Nature of Persons." *University of Pennsylvania: Neuroethics Publications* (2008) Retrieved from http://repository.upenn.edu/neuroethics_pubs/37.
- Setia, Adi. "Freeing Maqasid and Maslaha from Surreptitious Utilitarianism," *Islamic Sciences* 14, no. 2 (2016): 127 -158.
- Sorgner, Stefan Lorenz. *Transhumanismus. Die gefährlichste Idee der Welt!?* Freiburg im Breisgau: Herder, 2016.
- Stove, David Charles. *Darwinian Fairytales: Selfish Genes, Errors of Heredity, and Other Fables of Evolution*. New York: Encounter Books, 2007.
- Subboor, Ahmed. "Islam, Evolution and Darwinism." 2017, accessed August, 10, 2018. <https://www.youtube.com/watch?v=riqCx84rhfY>.
- Sutton, Agneta. "Transhumanism: A New Kind of Promethean Hubris." *The New Bioethics*, 21, no. 2 (2015): 117-127. <https://dx.doi.org/10.1179/2050287715Z.00000000060>
- Wehling, Elisabeth. *Politisches Framing: Wie eine Nation sich ihr Denken einredet - und daraus Politik macht*. Berlin: Ullstein, edition medienpraxis, 2018.
- Weindling, Paul. "Julian Huxley and the Continuity of Eugenics in Twentieth-century Britain." *Journal of Modern European History* 10, no. 4 (2012): 480-499. doi: [10.17104/1611-8944_2012_4]
- Wingeier, Brett. "How Are Brain-Machine Interfaces Being Used In Medicine Today?" *Quora*. Accessed September, 18, 2018, <https://www.forbes.com/sites/quora/2018/02/05/how-are-brain-machine-interfaces-being-used-in-medicine-today/#5eb0e6742e87>