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Bit Bot Is Watching You: Transhumanism and Bioethics in Ian McDonald's* *The Dervish House*

Abstract

This study reveals that while human enhancement technologies that transhumanism advocates have potential to help humanity transcend its biological, cognitive, and physical limitations, they simultaneously may pose considerable ethical, social, and existential risks. British author Ian McDonald's *The Dervish House* (2010) displays the pervasive presence of such advancements, particularly nanotechnology, in the characters' daily lives, while also illustrating their profound impact on human nature. The intense anxiety and fear that characters experience towards nanotechnology in the narrative highlight its potential to compromise the integrity of the human body by disrupting its natural functions. Moreover, the plot demonstrates that devices reinforced with nanotechnology as a form of human enhancement can manipulate people, spy on their private lives, undermine their nature and disrupt the order of society. In contrast to the optimistic vision of transhumanists that human enhancement technologies may be essential in the evolutionary journey of humanity, bioethicists maintain that human nature, autonomy, and dignity may be eroded as a result of unregulated and unrestrained use of such technologies. In light of these discussions, it is suggested that technology must be shaped around ethical standards and accountability. Consequently, *The Dervish House* serves as a cautionary tale, underscoring the necessity of embedding ethical principles and accountability mechanisms into the very architecture of technological progress to safeguard human dignity.

Keywords: Ian McDonald, The Dervish House, Transhumanism, Human enhancement, Bioethics.

Bit Bot Seni İzliyor: Ian McDonald'ın *Derviş Evi* Adlı Eserinde Transhümanizm ve Biyoetik

Öz

Bu çalışma, transhümanizmin benimsediği insan geliştirme teknolojilerinin insanlığın biyolojik, bilişsel ve fiziksel sınırlarını aşmasına yardımcı olma potansiyeli taşımalarına rağmen; aynı zamanda önemli etik, sosyal ve varoluşsal riskler de oluşturabileceklerini ortaya koymaktadır. Büyük Britanyalı yazar Ian McDonald'ın 2010 yılında yayımlanan *Derviş Evi* adlı eseri, romandaki karakterlerin günlük yaşamlarında insan geliştirme teknolojilerinin, özellikle nanoteknolojinin yaygın bir şekilde kullanımını gösterirken; bu teknolojilerin insan doğası üzerindeki etkilerini de örneklendirmektedir. Anlatı içerisindeki karakterlerin insan geliştirme teknolojilerinden olan nanoteknolojiye yönelik yaşadıkları yoğun kaygı ve korku, bu teknolojinin insan vücudunun işleyişini tehlikeye atma potansiyelini açığa çıkarmaktadır. Buna ek olarak; olay örgüsü ile birlikte roman karakterlerinin başlarından geçenler, insan geliştirme teknolojilerinden olan nanoteknoloji ile güçlendirilmiş cihazların insanları manipüle edebileceğini, özel hayatlarını gözetim altında tutabileceğini, doğalarını baltalayabileceğini ve toplumun düzenini bozabileceğini göstermektedir. Transhümanistlerin insan geliştirme teknolojilerinin insanlığın evrimsel yolculuğunda hayati önem taşıyabileceğine dair iyimser görüşlerinin aksine; biyoetik alanında çalışan kuramcılar, söz konusu teknolojilerin etik denetimden yoksun biçimde kullanılmasının insan doğasını, özerkliğini ve onurunu tahrir edebileceği görüşünü savunmaktadırlar. Söz konusu tartışmalar göz önünde bulundurulduğunda, bu çalışmada teknolojik ve bilimsel ilerlemenin etik standartlar ve hesap verebilirlik etrafında şekillenmesi gerektiği öne sürülmektedir. Sonuç olarak *Derviş Evi*, insan onurunu korumak için teknolojik ilerlemenin temelinde etik ilkeleri ve hesap verebilirlik mekanizmalarını entegre etmenin zorunluluğunu vurgulayan uyarı niteliğinde bir hikâye sunmaktadır.

Anahtar Sözcükler: Ian McDonald, Derviş Evi, Transhümanizm, İnsan geliştirme, Biyoetik.

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Introduction

Ian McDonald's *The Dervish House* (2010) depicts a near-future society where nanotechnology rapidly transforms human life, simultaneously offering opportunities for individual enhancement while exposing people to profound existential and social risks. In this regard, the novel serves as a fertile ground for examining the potential benefits of human enhancement technologies within the framework of the transhumanist movement. Moreover, a close reading of this award-winning work may enable philosophers, scientists, and policymakers to formulate informed perspectives and derive implications concerning these technologies, while critically engaging with bioethical considerations. This study aims to bring a critical approach towards human enhancement technologies and what they might mean to humanity. To this end, the study employs a literary text in an attempt to foresee dire consequences of uncontrolled use of technological and scientific advancements. According to Swirski, works of literature are apt to offer "the narrative and cognitive machinery for examining issues that challenged thinkers of yesterday, and will continue to challenge of thinkers of tomorrow." (Swirski, 2007, p. 11). In a similar vein, Murray (1997) argues that narratives of fiction can provide readers with a grasp of morality and educate them as regards controversial issues. Taking this into consideration, it seems that discussing human enhancement technologies within the context of transhumanism and bioethics through a literary text might be fruitful since such works can enable readers to evaluate important matters from the first eye-witnesses; that is, characters that literary works feature.

Throughout history, humanity has consistently sought ways to transcend its own limitations. Such desire has been expressed in epic and religious writings of various civilizations over the course of centuries. The search of immortality in the Sumerian epic of Gilgamesh, the stolen fire in the Greek myth of Prometheus, and the flight of Icarus can all be considered as a challenge against the gods' authority and a desire to transcend human limits. It seems that humankind has expressed such longing in innumerable narratives and myths ever since (Bostrom, 2005). This is where transhumanism emerges—a philosophical movement that seeks to enhance human well-being and even pursue the prospect of immortality. The transhumanist movement advocates the use of science and technology to enhance human capacities. In this sense, transhumanism aims to go beyond common problems that humanity faces. By the same token, More (2013) proposes that transhumanism seeks to promote values and principles of human life through advancements in science and technology. From this perspective, transhumanist thinkers argue that humanity remains in an ongoing process of evolution, that our cognitive, physical and biological capacities are not yet final, and that certain boundaries—such as aging and terminal illnesses—can be transcended. They contend that human enhancement technologies including nanotechnology may extend the human lifespan and even open the possibility of immortality. Despite this promising outlook, transhumanism and possibilities that transhumanists suggest may be one of the most dangerous ideas facing humanity (Fukuyama, 2004). Scholars who are skeptical as regards human enhancement technologies argue that such technologies may pose dangers and risks rather than benefits in the long term. They adopt conservative attitudes towards human enhancement technologies by drawing attention to controversial and alarming aspects of these advancements that can change human nature (Giublini & Sanyal, 2015). To illustrate, Sandel (2009) suggests that such scientific advancements enable people to play the role of gods as in the myth of Prometheus. From this standpoint, the author states that we might lose our understanding of acknowledging our lives as a gift and confront danger of fueling hubris by manipulating natural processes of life. Considering the perspectives of transhumanists and bioethicists, it is evident that there is an ongoing debate regarding the use of human enhancement technologies and their transformative effects on humanity. Amidst these discussions, Ian McDonald's *The Dervish House* emerges as a significant literary work that engages with the themes of human enhancement and its societal, existential and ethical implications. Specifically, the novel

explores the impact of nanotechnology as a form of human enhancement technology on human evolution, privacy of individuals and ethical dilemmas surrounding transhumanist advancements. In light of this, the novel seems to serve as an effective medium for presenting this debate, offering a picture that provides deeper insight into the issue at hand.

This study aims to discuss how the goals of transhumanism mentioned above and bioethical discussions in relation to that can be viewed within the context of *The Dervish House*. In other words, this study investigates whether the human enhancement technologies portrayed in the novel anticipate a revolutionary and prosperous era of harmony or, conversely, foreshadow a profound disruption of human nature. Given that the novel is centered around nanotechnology; the plot and the characters may provide a valuable perspective on this topic. Seen in this light, it remains to be seen whether *The Dervish House* portrays transhumanism and human enhancement technologies as a utopian ideal or as a cautionary narrative warning against unregulated technological advancement. Furthermore, it might be worth examining how the novel navigates bioethical concerns as regards human enhancement technologies, especially in a society shaped by historical and cultural tensions.

There is limited scholarly research on *The Dervish House*, and no existing studies have examined the novel through the lens of transhumanism and bioethics. Moreover, the ethical dilemmas and concerns surrounding human enhancement technologies depicted in the book remain unexplored in academic discourse. Although transhumanism has been widely discussed in science fiction, much of the existing scholarship focuses on canonical works. From this perspective, Kıyıcı (2022) examines *Brave New World*, *Neuromancer* and *her*, highlighting how human enhancement technologies undermine human nature and contribute to dystopian societies where individuals are subjected to strict control and deprived of autonomy. The study reveals that while the human enhancement technologies advocated by the transhumanist movement may offer short-term benefits for humanity, they also present potential long-term risks that warrant careful ethical consideration. A recent study, carried out by Collado-Rodríguez (2023), also highlights possible unintended consequences of scientific and technological advancement that transhumanists optimistically advocate. In the study, the author underscores how William Gibson's *Neuromancer* offers an existence of human beings devoid of autonomy, embodiment and purpose. From a bioethical perspective, the study underscores that commodifying mind and eroding dignity as a consequence of unregulated technology pose grave danger for human nature. While transhumanist perspectives often emphasize the positive potential of human enhancement technologies, Collado-Rodríguez suggests that the novel functions as a cautionary tale, underscoring the need to reevaluate what it means to be human in a digitally enhanced world. Elsewhere, Peters (2018) explores Mary Shelley's *Frankenstein* and highlights certain concerns as regards human enhancement technologies and harmful consequences of their unregulated use. Within the context of transhumanism, the author sheds light on the tension between human enhancement and responsibilities that must accompany such advancements. Drawing parallels to doctor Frankenstein's failure to take responsibility for his creation of the monster, the author raises alarm about the possibility that loosely regulated scientific and technological progress may lead to adverse implications in response to transhumanists' aspirations to go beyond limitations of humanity through human enhancement technologies. As far as bioethics is concerned, Peters underlines the importance of precautionary measures in scientific advancement. In view of this, the author proposes The Precautionary Principle (PP) which holds that human enhancement technologies should not be ceased, yet they must be managed with caution, ethical responsibility and informed regulations in order to prevent risks. In this sense, the desire to transcend boundaries of human capabilities through human enhancement technologies seem to require a balanced approach – one that fosters innovations while safeguarding human dignity, autonomy and personal as well as societal well-being. In a related study, Koplin and Massie (2020)

demonstrate how Mary Shelley's *Frankenstein* shows that, much like Victor Frankenstein's unregulated experiment, contemporary scientific and technological developments raise pressing ethical concerns about morality, autonomy, and scientific responsibility. Bearing this in mind, it can be suggested that the authors interpret Shelley's work as a narrative addressing ethical concerns within bioethics, particularly in relation to human enhancement technologies.

The current study employs a critical framework, namely transhumanist and bioethical perspectives, seeking to analyze *The Dervish House* from opposing viewpoints. While transhumanists envision and promote a future where human enhancement technologies such as nanotechnology merge with human biology and humanity transcends its cognitive and biologic limitations (Kurzweil, 2005), bioethicists raise concerns about long-term benefits of such technologies (Fukuyama, 2003). In other words, bioethicists seem to question whether human enhancement technologies will truly improve human well-being. On the one hand, transhumanists argue that human enhancement is both inevitable and a vital step in the course of human evolution. On the other hand, bioethicists caution that such advancements carry profound risks, including the potential erosion of human nature. It is worth noting that the framework adopted in this study enables a balanced philosophical discussion of *The Dervish House*, one that considers not only the potential benefits but also the risks of human enhancement. Through these perspectives, the study examines how Ian McDonald's novel presents nanotechnology as a form of human enhancement technology. Pertaining to this discussion, Bostrom (2005) states:

Molecular nanotechnology would enable us to transform coal into diamonds, sand into supercomputers, and to remove pollution from the air and tumors from healthy tissue. In its mature form, it could help us abolish most disease and aging, make possible the reanimation of cryonics patients, enable affordable space colonization, and – more ominously – lead to the rapid creation of vast arsenals of lethal or non-lethal weapons (Bostrom, 2005, p. 9).

From this perspective, as stated above, the author maintains that nanotechnology as a sort of human enhancement could offer considerable benefits in our social and personal lives. However, the use of nanotechnology may also have far-reaching ramifications. Ray Kurzweil, another influential figure in the transhumanism movement, is well-known for his hopeful outlook on human enhancement technologies including nanotechnology, artificial intelligence, and mind-uploading. Being one of the most eminent scientists in the field, Kurzweil confidently defends his position and maintains that these technologies will radically enhance humanity in terms of cognition, health and longevity. However, in spite of his firm attitude and optimistic views, Kurzweil also recognizes the potential risks that could be brought about by such advancements. In this regard, he asserts:

Future organizations (whether governments or extremist groups) or just a clever individual could put trillions of undetectable nanobots in the water or food supply of an individual or of an entire population. These spybots could then monitor, influence, and even control thoughts and actions. In addition existing nanobots could be influenced through software viruses and hacking techniques. When there is software running in our bodies and brains (as we discussed, a threshold we have already passed for some people), issues of privacy and security will take on a new urgency, and countersurveillance methods of combating such intrusions will be devised (Kurzweil, 2005, p. 273).

If these concerns become reality, the implications for human autonomy and privacy could be profound. The potential use of nanotechnology for surveillance and control could jeopardize human autonomy and freedom with the deployment of undetectable nano robots into water and food supplies which could enable large-scale monitoring and even manipulation of thoughts and

actions of individuals. From this perspective, Kurzweil's reservations emphasize that scientific developments must be guided by responsibility and foresight to make sure that innovation serves humanity rather than threatens it. His apprehensions once again highlight that nanotechnology, despite its immense promise, has the potential to cause significant harm to both individuals and society.

Milburn (2002) likewise expresses concerns about the potential of nanotechnology. The author describes nanotechnology as an effective force that shapes culture, economics, and human identity itself. In his study, he states:

Offering intellectual and commercial attractions, career opportunities and research agendas, nanotechnology foresees a technocultural revolution that will, in a very short time, profoundly alter human life as we know it. The ability to perform molecular surgery on our bodies and our environment will have irrevocable social, economic, and epistemological effects; our relation to the world will change so utterly that even what it means to be human will be seriously challenged (Milburn, 2002, p. 263).

Milburn's description of a revolution suggests that nanotechnology can irrevocably challenge the definitions of human, which might raise deep-seated philosophical and ethical questions. In the context of transhumanism, the belief that technological and scientific advancement represents a crucial step toward overcoming the limitations of humanity is strongly emphasized. The possibility to perform molecular surgery on both the body and environment aligns with transhumanist aspirations which embrace innovation for human enhancement, cognitive and biological augmentation as well as immortality. On the other hand, from a bioethical standpoint, such striking and radical developments raise questions about human nature and autonomy. Supposing that the very definition of what it means to be human is challenged, it may be suggested that ethical discourse must be in harmony with scientific progress to ensure that human enhancement technologies serve humanity rather than undermine it.

Nanotechnology in *The Dervish House*: Transhumanist Aspirations and Ethical Concerns

The Promise of Nanotechnology: Going Beyond Human Limitations

Ian McDonald's *The Dervish House* (2010) portrays a world in which nanotechnology is experienced in everyday life of individuals in the year of 2027. The narrative is set in Istanbul, which McDonald portrays with a richly atmospheric and stylistically innovative approach. In this world, it can be noticed by the reader that nanotechnology offers considerable benefits and possibilities for human enhancement. More precisely, nano inhalers that enhance concentration, biochips that form a direct interface between the human brain and technology, and the transcriber that is engineered to enable individuals to transfer their experiences and skills are all examples that demonstrate the transhumanist promises and aspirations to transcend limitations of humanity. Transhumanism advances the view that scientific and technological progress can expand human capacities, enabling longer lifespans, protection against terminal diseases, and even the possibility of immortality. In addition, the movement envisions a future in which robotics, biotechnology and nanotechnology converge to eliminate diseases, enhance cognitive and biological attributes, and fundamentally reengineer human nature. These aspirations are reflected in *The Dervish House*, in the universe of which characters rely on nanotechnology in order to improve their cognitive abilities and enhance themselves:

We are the scum on the surface of that bacterial world, we are the survivors. No, what is much more interesting to me, and, I suspect, to a so called terrorist group, is nanotechnology's potential to reprogramme our personalities. The ultimate victory in any conflict is hearts and minds. In the past it has always been easier to kill than to convert, but this is the age of ideological conflict. Our military has developed nanotechnology

packages to improve concentration, aggression, team-working, enhance sensory inputs and, significantly, diminish empathy. Pilots, long-distance drivers, coders, performers, actors, sportsmen and women routinely use nanotech, and the image of the nano-snorting Levent trader who can't start the day without inserting a nozzle into his nostril is beyond a cliché now. We routinely use nanoagents to improve concentration, sociability, power of recall, to increase our ability to learn or give us access to secure short-term information. We can buy moods, emotions, aspects of personality quite foreign to us. Young people on a night out can take sociability, eroticism, and dis-inhibition. We give it to our schoolchildren at exam time without a thought. To even gain admission to this group I had to inhale a nanoagent which placed a contact number in my short-term memory. What we are engaged on is a massive, unregulated and improvised experiment in reprogramming ourselves. The true end of nanotech is not the transformation of the world; it's the transformation of humanity. We can redefine what it means to be human (McDonald, 2010, p. 380).

This passage from the novel may throw the reader headfirst into a world where nanotechnology not only enhances human condition but also it challenges definitions of the human being. Considered within the perspective of transhumanism, the passage perfectly reflects the transhumanist aspirations that suggest human nature can be transformed with technological and scientific advancements. In this text, through the character of Georgios Ferentinou, a retired experimental economist and one of the last remaining Greeks in Istanbul, McDonald mirrors the transhumanist vision embedded in the novel's universe. Ferentinou's point of view demonstrates a key transhumanist aspiration, which is the understanding that human nature can be improved with the means of science and technology. The emphasis on reprogramming personalities is parallel with the transhumanist belief that human evolution is an ongoing process—one that remains incomplete and open to further enhancement. The designation of concentration and empathy through nanotechnology, as it can be understood from the passage above, seems to align with the philosophy of transhumanism which maintains that the human being can be enhanced and designed (Ponsaran, 2024). McDonald's text also describes students who take exams with the help of nano regulators and young people who inject sociability into their bodies. These examples harmonize with another transhumanist belief that scientific and technological progress in medicine can not only be used for treatment but also for enhancement. However, as noted in the introduction to this study, such transformation may entail detrimental consequences. In other words, as Ferentinou's monologue suggests, human enhancement technologies have the potential to generate profound ethical and social problems. The mechanization of human attributes and the merging of human identity with technology demand thorough examination and critical analysis.

Elsewhere in the novel, another example that shows the transhumanism movement champions human enhancement technologies in order to improve human nature can be seen in the conversation between the character of Leyla and her partners who are on the brink of starting a venture:

It's what I snort when I need to remember stuff or have to concentrate or want to play at being someone else for a while,' Leyla says. 'It's what makes pictures on T-shirts move and lets you have smartpaper and scrubs extra cholesterol out of your arteries or alcohol out of your liver. It's why my ceptep and car, if I had a car, recharge in five seconds flat (McDonald, 2010, p. 84).

The biotechnological processes depicted in the text can be seen as manifestations of the transhumanist thought realized within society. At the core of transhumanism, the convergence of biotechnology and nanotechnology plays a pivotal role in the pursuit of transcending human limitations. From this perspective, nanotechnology emerges as a key instrument not only for

extending human capacities but also for reshaping the very conditions of human existence. In McDonald's fictional world, the reader observes how nanotechnology transforms both matter and the human body. At this point, Leyla's words reveal that nanotechnology can be used not only for medical reasons but also to make daily life easier. As a result, nanotechnology appears to transform social life by blurring the boundary between the human body and the material world. The process of alcohol being removed from the liver or the regulation of cholesterol levels in the arteries, as shown in the quote above, are clear manifestations of nanotechnology's deep integration into daily life. As Leyla describes, nanotechnology enhances memory and focus, reshapes personal identity, enables dynamic materials like smartpaper, and even optimizes bodily functions. This highlights how nanotechnology in *The Dervish House* becomes a form of human enhancement, which aligns with the principles of transhumanism.

The pervasive integration of nanotechnology within the fictional world of Ian McDonald's *The Dervish House* serves as a potent narrative vehicle for exploring transhumanist aspirations. This depiction demands a rigorous ethical examination, which this paper will undertake. In the novel, nanotechnology is not merely a tool but a ubiquitous presence that is deeply integrated into the fabric of daily life. This technological saturation fundamentally challenges and reconstructs human nature. From this perspective, the question that transhumanism poses still remains: is humanity evolving into an entirely new form of existence? Considering that transhumanist interventions could fundamentally change human nature, leading to a deep alienation from one's own essence, one must critically assess their ethical implications. Accordingly, human enhancement technologies, nanotechnology in particular, must be examined in order to draw implications about how it might transform human nature—offering possibilities of liberation and progress, while simultaneously raising profound problems.

The Dervish House does not present an entirely utopian vision. While nanotechnology offers unparalleled benefits as shown in the passages above, it also introduces new ethical dilemmas—an issue that has been at the core of bioethical debates surrounding transhumanism. The novel illustrates how nanotechnology can extend human capabilities beyond their natural limits, blurring the boundaries between the biological and the artificial. However, such advancements do not come without consequences. The integration of nanotechnology into everyday life raises concerns about the erosion of personal autonomy, as individuals may be subjected to invasive surveillance and external control. Moreover, the ability to manipulate the human body and mind at a fundamental level challenges traditional notions of identity. These concerns highlight the potential for nanotechnology not only to augment humanity but also to redefine what it means to be human, raising pressing ethical questions about its role in society.

Nanotechnology's Dark Side: Surveillance and the Erosion of Autonomy in *The Dervish House*

Ian McDonald's *The Dervish House* highlights how nanotechnology can profoundly penetrate into the private lives of individuals and bring up ethical and social threats. The novel provides the reader a medium where it is evidently noticed that nanotechnology not only alters biological structure of the human being but also it can disrupt social order. In this sense, the novel emphasizes these concerns through the use of a fictional world and questions the influence of nanotechnology as a sort of human enhancement on humanity. In the novel, McDonald skillfully describes how nanotechnology is integrated in the ordinary lives of characters. Through the character of Leyla, in particular, the author reflects how the fictional society of the novel feels overwhelmed and anxious as regards this new technology:

Nano still scares Leyla Gültaşlı. No matter how safe or respectable or ubiquitous it has become, she imagines it crawling inside her, like legends of terrible old mountain men invaded and hollowed out by lice so that they were nothing inside but swarming vileness.

She imagines it like ash in the veins, like she has heard people who inject drugs feel; dirty inside. At the college she had always declined it, going bare-brained to exams and assignments even if it disadvantaged her against her focused, sharp, pattern-recognizing course-mates. She weakened under the pressure of the final exams. There was always someone who knew someone who could get the good stuff, the grey stuff, the stuff that really worked. The vial had worked its way up the supply chain, perhaps from this kitchen work-top. It stood on her bedside cabinet, leaking nightmares. The morning of the first exam she had snapped the top and poured the nano, fine and fluid as water, down the toilet. Two flushes to be safe. Let the fish of the Galata Bridge be focused and sharp and recognize patterns they've never seen before. She could not bear the thought of dirt and ashes inside her (McDonald, 2010, p. 138).

Such fears and reservations about nanotechnology clearly reflect the negative perceptions that people may hold toward human enhancement technologies. From this standpoint, it can be pointed out that nanotechnology's ability to manipulate the human body can wreak havoc on society and give rise to dire consequences. Leyla's experience, in which she perceives nanotechnology as a force operating beyond her control within her own body, illustrates how the technology may inflict profound harm on both individuals and society. Leyla's fear exemplifies common concerns about manipulation of the human body with nanotechnology. The narrative suggests that nanotechnology, however commonplace in society, reveals itself as an uncontrollable, invasive, and destructive force. Specifically, the expression that indicates nanotechnology contaminates her by crawling inside her demonstrates how it can threaten personal integrity. In this instance, nanotechnology appears to infiltrate bodily functions, instilling apprehension in individuals, which is likened to the sense of self-contamination experienced by drug users. She avoids using nanotechnology in the years of her university education while her peers use it to succeed. This implies fundamental challenges that are caused by availability and distribution of technology in society. As a result, Leyla's intense concern regarding nanotechnology and her avoidance illustrate how this technology may jeopardize well-being of individuals and society. Seen in this light, the intervention of nanotechnology in human body and consequences of such manipulation can be viewed as a harsh criticism against optimistic future expectations of the transhumanism movement.

The novel also provides the reader with another implication which indicates that nanotechnology may have the ability to work as a molecular machine that can interfere with the human DNA. In the story, Besarani-Ceylan transcriber device is introduced as a tool that gets information from programmed nanotech agents in the bloodstream and transfers it to genes: "It is a molecular engine that takes information from bloodstream programmed nano and transcribes onto DNA" (McDonald, 2010, p. 87). From a bioethical perspective, such technology may result in profound problems. As mentioned at the outset of the current study, Sandel (2009) argues that such attempts to transcend human nature may create serious threats in terms of human identity and freedom. *The Dervish House* documents what sort of societal and individual consequences these threats will lead to by portraying DNA manipulation and the effects of nanotechnology on the human being.

One of the most striking aspects of the novel is that nanotechnology appears to be a biological weapon and power that can threaten global security. As a pivotal moment in the storyline, it is noticed by the reader that terrorists carry out a bomb attack in the heart of Istanbul, which releases nanotechnology gas into atmosphere. The purpose of the attack is to influence thoughts and belief systems of the individuals nearby:

There exists a terror cell in Istanbul developing a nanotechnology weapon. They organized the attack on the tram, it was an experiment. They selected victims to observe for symptoms that their nanoagent was effective. They see that it is and they are now

working to a full-scale attack. They will introduce it into the gas pipeline at Kayışdağı, from which it will be carried into Europe (McDonald, 2010, p. 382).

Such technology portrayed in *The Dervish House* heralds overwhelming dangers regarding manipulation of individuals as well as societies. McDonald reveals the profound threats that unrestrained technological and scientific progress can create by demonstrating how nanotechnology is manipulated for military and terrorist uses. From this perspective, Weil (2003) also highlights the importance of addressing specific scenarios of nanotechnology use in order to scrutinize the dangers of this advancement. The passage above provides a compelling example which shows that nanotechnology has the potential to be used for evil purposes. More precisely, it can be noticed in the novel that a terrorist organization operating in Istanbul employs a nanotechnology based bomb attack to serve their own ill intentions, which clearly showcases potential dangers of unregulated and unethical management of human enhancement. It is apparent that the purpose of the terrorists is “the religious conversion of a sizeable portion of the population of eastern and central Europe” (McDonald, 2010, p. 383). This incident aligns with Fukuyama (2003), who warns against the possibility that human enhancement technologies may harm human nature. Bearing this in mind, it can be suggested that human enhancement technologies may turn into weapons that can disrupt the order in society and human values when they are implemented without ethical and legal framework. The terrorist attack described in the novel can be considered as a striking evidence how such technologies may be apt for evil purposes that disregard human nature and dignity.

The novel also depicts a dystopic future by revealing how technological surveillance reinforced with nanotechnology threatens human autonomy and privacy. McDonald's text demonstrates that the society transforms into a panoptical order through various surveillance technologies such as dragonfly bots that confirm identities, photo drones that wander across the city, black drones that are invisible to the police, robots that trace the air for chemical agents, and stealthy and secretive press bots. The dragonfly bots that Leyla Gültaşlı observes are portrayed as unmanned aerial vehicles that can confirm the background of people: “Up and down Vermilion-Maker Lane morning people stand in place while the dragonfly bots ascertain identities” (McDonald, 2010, p. 51). This description can be considered as a potent instance that illustrates biometric scanning and face recognition systems spy on people in the universe of *The Dervish House*. The convergence of nanotechnology and surveillance systems creates a tool for violating privacy and individual autonomy. Reading the novel, the reader can observe that surveillance technology in this future universe is one of the biggest threats to privacy and autonomy. It is noticed in the novel that such constant monitoring compromises privacy in public spaces. The actions of the characters, their communications through their phones and even their biological functions are subject to this surveillance with the use of the devices mentioned above. Therefore, it can be put forward that the novel reflects concerns about surveillance enhanced with nanotechnology in modern societies where private information is increasingly gathered and analyzed.

Can Durukan, a curious nine-year-old resident of the dervish house, exemplifies the novel's pervasive human-machine integration. Just as the kids at his age play with toys or comic books, Can plays with his robots that he can control with his neuron activities very well. In the universe where the story of *The Dervish House* takes place, crime investigation drones that are observed aftermath of the bomb attack, photo drones that art students randomly use, secretive press bots that journalists use, and conspiring black drones indicate the theme of violation of autonomy and privacy. Can uses his “BitBots” (McDonald, 2010, p. 24) in order to investigate the incidents around him, which shows the multifaceted nature of surveillance in the novel:

Can Durukan knows his robots like other kids know cars or footballers or Chinese comics. An industrial bot wouldn't pay a wink of interest even if the world were ending down there. What else could it be? On his adventures high above Eskiköy Can has encountered photodrones: machines set wandering on month-long journeys across the city by art students to capture the random and spontaneous. Those pause, shoot, stalk on. He has also met unofficial press bots upon the rooftops: stealthy, secretive surveillers used by investigative journalists and photographers looking for the news behind the press releases. Ghost machines that can flash-burn their memories to slag if detected by the state and its agents. Everything deniable. If this is a press drone, the photographer's timing is brilliant. Too brilliant. And then there are the black drones: the ones they like to mutter about on the conspiracy sites. Invisible to official police bots, surveilling the surveillers. If this clunky chunk of yellow plastic is a legendary black drone, it's in some very deep cover altogether. And then hide the licence number? This is none of these. This is proper mystery (McDonald, 2010, p.55).

It is noteworthy that Can Durukan has a great command of knowledge about robots even though he is just a little child in the world of *The Dervish House*. When the crime scene investigation bots are deployed at the location where the bomb attack was carried out, Can notices a rather interesting yellow robot, the license number of which is hidden. Thanks to his great knowledge about various types of robots, he is able to tell the one he notices from the other types. This highlights how surveillance is common in the setting where the story of the novel takes place; not only the government but also ordinary individuals seem to employ various robots and drones supported with nanotechnology in order to serve their own purposes. Taking this into consideration, it can be inferred from the novel that there is not a comprehensive regulation regarding the use of surveillance and everyone can spy on certain people and things depending on their motives. As a result of this, the rate of crime may increase and people, even children can face danger from various aspects as noticed in the novel. In this context, *The Dervish House* reflects the fear of a future where creepy surveillance on individuals supported with nanotechnology is ubiquitous, the threat of which violates human dignity, autonomy, and privacy. Its atmosphere is a robust reminder of the theme of constant surveillance addressed in George Orwell's *1984*. In Orwell's dystopic world, the expression "BIG BROTHER IS WATCHING YOU" [emphasis in original] demonstrates strict authority on individuals (Orwell, 1950, p. 5). By the same token, Ian McDonald's *The Dervish House* also provides an alternate reality where it is shown that surveillance is permeated in all parts of daily life with drones, robots, and bit bots supported with nanotechnology. The totalitarian regime in *1984* controls its citizens through fear and manipulation. In *The Dervish House*, however, not only the government but also the citizens seem to use nano technological devices of surveillance, which erodes individual autonomy and privacy. More precisely, instead of *The Big Brother*, in the world of McDonald's novel, the bit bot is watching you. This parallel indicates that unchecked human enhancement technologies such as surveillance supported with nanotechnology could lead to profound problems.

Conclusion

This study reveals human enhancement technologies that transhumanist thinkers advocate have great potential for humanity to transcend its biological, physiological and cognitive limitations. However, such technological and scientific progress may not be without its consequences. Nanotechnology, as a form of human enhancement technology, could lead to ethical and social problems. Ian McDonald's *The Dervish House* reveals how nanotechnology can infiltrate the daily lives of people and how this technology has the capacity to spoil integrity of individuals and the order of society. While transhumanism holds that human enhancement technologies such as nanotechnology can biologically, physically, and cognitively move human

evolution forward, bioethicists maintain that human nature may be undermined as a result of unrestrained and unregulated advancements.

Through the character of Leyla, the novel reveals that nanotechnology may interfere with the function of individuals' bodies and manipulate them. Accordingly, it can be argued that this is a powerful illustration that nanotechnology carries the risk of controlling people without their consent and has the potential to endanger their well-being. Additionally, robust examples such as Besarani-Ceylan transcriber device evidently expose how easily reckless technology can alter human DNA and biological integrity. From this standpoint, while the novel acknowledges the potential benefits of the transhumanist vision to some extent, it also highlights the dangers and risks posed by unregulated technology in the absence of ethical frameworks.

Taken together, the dual nature of human enhancement technologies—offering promising innovations to help humanity transcend its biological and cognitive limitations while simultaneously posing serious risks to human nature—suggests that scientific and technological progress must be guided by ethical standards and responsible oversight. From this point of view, the findings align with the relevant work analyzed at the outset of this study. This perspective highlights that human enhancement technologies including nanotechnology can contribute to the evolutionary trajectory of humanity. However, it must also be emphasized for scientists and policy makers that such innovation could threaten key elements of human nature. Consequently, the implementation of comprehensive ethical frameworks is imperative to safeguard human dignity and rights amidst rapid technological advancement. *The Dervish House* provides us with a narrative of a possible near future which is not only hopeful but also cautionary; ethical principles are vital and indispensable in the pursuit of human enhancement.

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