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Ethics, Genes-Editing and Digital Immortality: A Posthumanist Reading of Ishiguro's Klara and the Sun

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Abstract: *Technology has played its role in enhancing people's quality of lives by boosting their innate competence. Genetic Engineering and Digital immortality are recent developments in this field. This study intends to examine the darkside of advanced technology in Genetic Engineering and the complexities regarding digital immortality with textual references from Ishiguro's Klara and the Sun. The analysis of text is dealt with under the theoretical paradigm of ethical debates on genetic engineering in Francesca Ferrando's posthuman bioethics from her work Philosophical Posthumanism and Micheal Sandel's The Case against Perfection. Moreover, the issues of consciousness and mind-uploading also make the base of the study. This study finds that these advance technologies have also negative impacts on humans and society.*

Key Words: Genetic Engineering, Digital Immortality, Posthuman Bioethics, Mind-Uploading

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Introduction

Technology has played its role in enhancing people's quality of life by boosting innate competence. Interventions in the biomedical field have been used to make up the deficiencies such as listening, viewing, and mobility, for example, the implantation of artificial retinas to restore the vision of blind people. In 2011, Samuelson observed that "the convergence of nanotechnology, biotechnology, robotics, information and communication, and applied cognate science poses a new situation in which the human has become a designer project" (Samuelson, 2011, p. 19). In the medical field, numerous technologies and pharmaceutical items have been developed for enhancement or improvement in capabilities, supplements to boost brain power, technologies to control mood, and artificial legs for competitive purposes.

The human state, both physical and mental, has specific limitations. Transhumanists have been labelled as proponents of far-reaching human

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augmentation. Humans have, in their opinion, worked hard to upgrade their innate version with new technologies thus far. In 2021, Kruger in his book Virtual Immortality states, "Transhumanists deal practically with the issues of prolonging life and enhancement of mental performance, such as through the use of smart drugs, life-prolonging diets, advances in prosthetic technology, the potential for a renewed form of eugenics, or even the prospects of cryonics, while these applications are rarely mentioned in posthumanist writings" (Kruger, 2021, pp. 61-62). Technology may, shortly, be capable of assisting and transforming human physiques. However, advocates of these innovations acknowledge that employing technology to transcend human capabilities may also pose a risk to human life (Kurzweil, 2005). On the other side, opponents of this version are called conservatives, debating protecting natural human performance with the idea that human life contains something inherently important that should be maintained (Sandel, 2007).

The ethical basis for using technologies in humans is still a point of contention between transhumanists. In a more moderate light, one of the more significant critical questions is whether human enhancement (primarily focusing on germline heritable genetic innovations) is a significant development, and represents an appropriate use of time, finance, and assets compared to other pressing societal issues. For these more moderate and perhaps less polarized voices, it is critical to ignore the views of different stances and perspectives (Persson & Savulescu, 2008).

Literature Review

Transhumanism

Transhumanism is the umbrella word encompassing a variety of technologies that converge on the desire for profound human augmentation. In 2011, Hayles observed: "Transhumanism is a child of secular humanism and the Enlightenment" (2011, p. 225). Its goal is to improve contemporary human nature by using applied science, technology, and rational ways to "increase human health, intelligence, and physical capabilities, as well as giving us control over our minds and ideas" (Hayles, 2011). These enhancements are achieved through different technological fields such as biotechnology, nanotechnology, cognitive science, and information technology using various tools, such as machine automation, artificial intelligence, cryogenic freezing, and genes-editing. These radical innovations will gift the mind and body with currently unavailable capacities (Grassie et al., 2011). Kurzweil's focus is on digital immortality and Grey's focus is on the continuous renewal of the physical body. However, both claim a central aim of transhumanism is to improve human nature (Ross, 2020).

Human Enhancement

"Human enhancement" is an umbrella term that refers to various emerging, existing, and innovative technologies. Some examples of human enhancement technologies include pharmaceutical products. The modification of the human body to improve performance brought about by technology-based interventions refers to Human Enhancement. This version of the definition describes human enhancement as any modification of the human body that aims at improving performance. There is a clear divide between restorative and non-enhancing therapies, therapeutic and non-therapeutic enhancements, and enhancements that do not provide any therapeutic benefit. The concept of human enhancement refers to the expression of a particular viewpoint towards advances in technology, medicine, and society. It is impossible to foresee how human enhancement technology will affect people, much as the effects of genetic modifications.

The goal may be to enhance our natural capabilities or provide us with qualities or capabilities that no living human has ever possessed, such as different senses or even complete night vision (Coenen et al., 2009).

Posthuman Bioethics

Posthuman bioethics refers to the ethical issues regarding using biotechnologies for human enhancement. According to the Oxford Dictionary, a designer baby is "a child whose genes have been selected by his/her parents and doctors so that he/she has particular traits" (Oxford Dictionary: Entry "designer baby," n. page).

A further distinction is explained between the concept of therapy and enhancement, bio-conservatives, and bio-liberal. The bio-conservative emphasizes protecting the integrity of the "beings" realm as much as possible and consequently, of the biological body. Generally, most bio-conservatives may accept therapy but do not support enhancement. On the other hand, bio-liberals are most often in favour of both therapy and enhancement. Ferrando (2020) focuses on the case of human embryo genetic engineering utilizing a new gene-editing technique called CRISPR to maximize cognitive qualities, among other things. She does a fantastic job of highlighting the ethical challenges raised by covering topics like cultural specificity of values, genetic prejudice, and the practical dangers of dealing with genes when we don't know how they link (Ferrando, 2020). Musculature or awareness may be highly desirable by some people and cultures but not others. The second issue can be explained through the example of the "Schwarzenegger mice" experiment and its complicated results. Genes do not work alone: their cooperation with the other genes may also lead to unpredictable results. "Adding or removing genes to enhance lifted babies may have completely unexpected outcomes" (Ferrando, 2020, p. 132). Another danger to be taken into consideration while talking about designer babies is genetic discrimination. Genetic discrimination is a kind of discrimination based on genetic information. The issue of genetic discrimination is potentially attached to the rise of lifted babies. "The procedure of enhancing "some" humans may most likely raise social disparities based on beings' primacies as in the science fiction movie Gattaca" (Ferrando, 2020, p. 133).

Theoretical Framework

Genetic Engineering and Mind-Uploading

Genetic technology generates the possibility of such an improvement by giving human beings extreme control over their body or life. Genome editing, also known as gene editing, is a group of technologies that can directly change or edit an organism's gene through acquired progress in the genome e.g., can insert, delete or replace the selected genetic data (Gaj, Gersbach, & Barbas III, 2013). DNA editing is expected to be far more precise than other genetic engineering. It has been argued that it is a revolutionary tool because of its cost and time-saving efficacy. This technique is thought to have several applications in human health, including both disease prevention and control.

Along with moral concerns, the main flaw in this invention is that humans do not estimate the whole range of the outcomes that the artificial mutation of the CCR5 could produce both genetically and phenotypically. This happens because humans acknowledge that, contrary to the popular belief of one gene-one trait credited a few years ago, the addition or deletion of a gene could influence various characteristics, which are irrelevant. This happens because of limited developmental linkages, processes, and genetic networks; a single gene alteration can have a cascade of various impacts (Galis & Metz, 2007). No doubt, the CCR5 mutation

protects against HIV infection but also increases the risk of life-threatening outcomes for some transmissible infections (Falcon et al., 2015).

Human evolution and genetic enhancement appear to be separate processes, generating numerous questions about the latter's implications and hazards. Furthermore, the theoretical revolutionary process of scanning a solid structure of the brain precisely enough to make a copy of the mental state (for long-term memory and "self") and transferring it to a computer in a digital condition is known as mind uploading, also known as whole brain emulation (WBE). The computer would then execute an emulator of the brain's data processing, letting it operate almost identically to the original brain while still possessing sentiment consciousness (Goertzel & Ikle, 2012). Mind uploading is a central conceptual feature of various science fiction novels, films, and games but Its result is also unpredictable. Creatures can be transcended, transformed, or eliminated by technological breakthroughs or evolutionary processes. However, posthumanism and transhumanism, though, structurally distinct, have a common interest in technology.

Genetic Engineering

Genes editing can be used to improve the function of numerous metabolic and functional procedures within the desired being. However, it is often a matter that one strives to enrich a specific host organism with new phenotypic traits and additional functionality. Under these consequences, genetic engineering rules can show non-native genes within the host organism, depicting the previous unavailability of protein products (Close et al., 2012).

Digital Immortality

The promise of digital immortality will alleviate all of our tensions, including the most pressing issue of life, death. Nikolai Fedorov, a supporter of the Soviet space program, once said that the fundamental nature of science is to revive the dead. Unfortunately, the digital undead has already infiltrated our society. Currently, the first step of digital immortality is available. There are two types of digital immortality: the first is through digital account memories, such as a human's pattern of life on the text, every click, net, message, exchange, and purchase saved in a corporate database, not to mention the untold number of uploaded Instagram pictures and Facebook pages. The second stage of digital immortality concerns mind uploading into computer software or chips and consciousness uploading in robots. Digital Immortality Institute currently provides social linkages between the living and the dead. "It's theoretically conceivable to duplicate the mind onto a computer and therefore provide a type of life after death" (Henriques, 2019, p. 2).

Bioethics

Bioethics, in its broadest definition, is "a subset of ethics concerned with all ethical issues that arise in the living sciences, including biology, biomedicine, health care, and medicine" (Clados, 2012, p. 11). Bioethics is defined by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as ethical issues relating to medicine, life sciences, and associated technologies as applied to human beings, taking into account their social, legal, and environmental dimensions.

Chance, Choice, and Responsibility

In his book, A Case Against Perfection, philosopher and lecturer Sandel (2007) proposed the concepts of Chance, Choice, and Responsibility. This project aims to look into the benefits and drawbacks of genetic engineering and the criticisms of human manipulation. According to Sandel, (2007),

humans can heal and prevent many ailments, but these new inventions will change our nature. Sandel (2007) reveals that gene selection serves the same goal as choosing a partner based on physical and intellectual characteristics. As a result, the implications look to be severe and potentially harmful. "If the genetic revolution erodes our appreciation for the gifted character of human powers and achievements, it will transform three key features of our moral landscape – humility, responsibility, and solidarity" (Sandel, 2007, p. 86). Genetic engineering evolved into an ambitious tool for manipulating the natural state of being. According to Sandel, (2007), the social meaning of chance, choice, and responsibility would change dramatically if genetic upgrades were implemented in society, and social solidarity would vanish. He claims that if people could direct their genomes and the element of chance in the genetic lottery was changed by choice. People could be held accountable for their lack of success. As a result, the societal motivation to share our wealth with the poor would be shattered.

TEXTUAL ANALYSIS

The dystopian novel, *Klara and the Sun* is set in future. Some children are genetically changed to improve their performance. They get their schooling entirely through online tutors at home. With limited prospects for socialization, their parents purchase robot companions for their lifted child. Klara, an artificial robot, is the narrator of the book.

Lifted Child / Designer Baby

A designer baby is a baby that has been genetically manipulated in vitro to have specific qualities, such as reduced disease risk or gender selection. The term "designer baby" was officially recognized by the Oxford Dictionary (Ly, 2012). The main aim of this advancement is to control the spread of diseases and to cure disabilities but another purpose is to generate babies with unique traits such as green eyes, white complexion, extraordinary genius, tall, fast, and even desired gender. Special meetings are organized for such kids to make them prepare for college and to make them socialize. These meetings are arranged by a lifted child at home and invited by other gifted children. The purpose of these meetings is to make contacts that would be beneficial in future. The gathering is arranged at Josie's home, but Josie is not interested in these gatherings and feels uncomfortable. Her mother tells her the purpose of these meetings: "It's not enough just being clever. You have to get along with others …This crowd happens to be your peer group. And when you get to college, you'll have to deal with all kinds" (Christie, p.35).

There are artificial friends for a lifted child as a companion to deal with their loneliness and to restrict their interaction with the natural child. So there are different versions of artificial robots, such as B3 and B2. Klara in the novel is one of them as a companion of Josie in the novel. Klara has to take care of Josie and always remain beside her. As the mother said, "Worrying about you, Josie, that's my work.' Then she added: 'Klara's work too" (Christie, p.47). Some extra struggles are required to bring up lifted children like expensive online tutors for schooling, upgraded versions of artificial friends for taking care of, special meetings for increased contacts and future benefits. There are many blessings of human modification, such as intellectual enhancement, physical enhancement, and long life, but it has also a dark side.

Ethical Issues Regarding Genes-Editing

CRISPR gene editing is a quick and low-cost way to change your DNA. Its ease of use means that it can be used in both scientific and therapeutic settings. Using DNA editing

to improve future people's features could even be considered a moral imperative. Some people oppose the genetic modification of embryos and germ cells because they believe that enabling such research and clinical applications would lead to more contentious applications. Genome editing could eventually be used to allow parents to choose the traits of their unborn child, including the physical, psychological characteristics and desired for aesthetic reasons, performance traits such as eye colour, gender, personality traits, physical strength, and cognitive ability, etc. Another controversial issue regarding genes-editing is that it would be used to enhance the child's biological capabilities beyond the level required for good health and even beyond the current capacities of the human body. Using present technologies for specific enhancements is a moral obligation of parents to their unborn offspring. But by customizing a baby to their preferences, parents can considerably decrease the number of options given to the youngster. The child's right to a future with a diversity of possible life plans must be respected regardless of the parents' views on genetic modification. Because the parents have internalized these standards or do not want their future kid to be stigmatized, parental preferences and gene modification may result from discriminatory social norms and prejudices such as lookism, racism, and ableism. As in the novel, *Klara and the Sun*, Josie's mother says, "If one child has more ability than another, then it's only right the brighter one gets the opportunities" (Helen, p.132).

In such cases, a person's choices would boost and inflame these norms, leading to even more stigmatization and discrimination. In addition, genetic editing may give modified children an edge over others as lifted children get more opportunities compared to non-lifted children like Josie (lifted) and Rick (non-lifted) in *Klara and the Sun*. There are online schooling facilities and expensive tutors who prefer to deal with lifted children, "They are either members of TWE, which forbids its members to take unlifted students" (Helen, p. 83), and colleges follow the same standards instead of Atlas Brooking that accept only 2 per cent unlifted children in the novel. Some argue that it would be antithetical to the concept of equal opportunity. Because genetic alteration interventions would most likely be more accessible to couples with more financial resources, the genetic benefits for those who are already well-off would "increase social and economic disparities" (Hughes, 2019). Josie and her sister got lifted because they belong to a privileged family in the novel, which is evident through Josie's mother's personality, "Mother was wearing a coat – a thin, dark, high-ranking one" (Klara, p. 12). The unpredictability of human germline editing may result in a reputational crisis for somatic cell therapy and clinical application. Josie and her sister suffered from a strange illness, and Sal, unfortunately, died "She got sick. Not the same sickness I have, something much worse, and that's why she died" (Josie, p. 49).

Social Segregation with a New Face

The social concern against designer babies is that if this advancement becomes accessible to clinical practice, it would create a difference between those who can pay for the service and those who cannot. Using Preimplantation genetic diagnosis to alter non-medical characteristics could cause further division between the upper and the lower class (Vacco, 2004). As in the novel, Rick faces this segregation at college: "Rick was never lifted, there remains one decent option for him. Atlas Brookings takes a small number of unlifted students … we can't find screen tutors for him. They're either member of TWE, which forbids its member to take unlifted students" (Helen, p. 83). The benefits of Preimplantation genetic diagnosis intervention will eventually lead to an even

wider gap between the haves and the have-nots (Fox, 2007).

In the novel Rick is not lifted because he belongs to a lower class: "Rick's house was smaller, and not just because it was further away. It too had been built from wooden planks, but its structure was a more simple – a single box, taller than it was wide, standing in the grass" (Klara, p. 34). If Preimplantation genetic diagnosis continues to be used by affluent people, it would conclude that the two different economic classes could grow into two different races. The genetic enhancement would eventually result in "social polarization and biological divergence (Fox, 2007). Klara remarks, "I think Rick(non-lifted) and Josie(lifted) must have grown up side by side, 'I said to Rick, 'just like your houses" (p. 34). The genetic difference (lifted and non-lifted) between Josie and Rick shows the gap between their classes. Different access to genetic technology will create a gulf between lifted and unlifted classes of individuals, who would live in separated social worlds with limited chance of contact, says molecular biologist Lee Silver, among others (Fox, 2007). Social segregation is the separation of people based usually on class, wealth, or ethnicity. According to this definition, it is clear that human enhancement in the form of a designer baby gives birth to a new form of a generation who are more efficient physically and intellectually. There is a certain way of livings for them, so they become quite different from other natural children or generations. In the education sector, both are treated differently "Rick used to go to a school, you know. I mean a real, old fashioned one" (Klara, p. 82). Chrissie (Josie's mother) goes for genetic engineering to secure the future of her children

Genetic Discrimination

Genetic discrimination refers to discrimination based on genetic information. Rick narrates this discrimination in the novel: "The smart kids think I have no shape. But I do. I'm just keeping it hidden (Rick, p. 70). Genetic discrimination is potentially attached to the rise of designer babies as is seen in *Klara and the Sun*. When Rick is at a party, a black-skinned woman said, "Some of us were lucky, some of us weren't" (p. 38) and gets entangled with lifted child Danny. His mother said to Rick, "You shouldn't be here at all" (p. 44). At this Rick said, "I don't belong here. This is a meeting for lifted kids" (p. 45).

Genetic modification may lead to fostering stereotypes and prejudice (Long, 2009). If certain traits are widely disliked, over time, this will result in fewer people with those characteristics, leading to a lack of diversity (Garcia, 1996). In some cases, perfectly healthy embryos will be damaged based on a dislike for specific traits. The result of a Lack of diversity will be problematic. It will generate a society that is biased against those who are different. As such features or disabilities become rarer, society's lack of experience with these characteristics will enhance our ignorance towards people with that trait (Suter, 2007). A non-lifted child (Rick) comes into a special meeting of lifted children, and they seem curious about him: "The adults began to greet Rick all at once, calling out kind things, but I noticed a strange caution in their voices" (Klara, p. 37) and his interests by asking questions, "So you don't watch movies on your Ds? … "I like movies in which horrible things happen" (Rick, p. 40).

Unpredictability in Genes-Editing

Genetically modified children generate a culture of consumerism. People pay for unique quality. Allowing parents to have the potential to select the best embryos and the best characteristics for their babies will result in the commodification of children (Fox, 2007). Affluent parents may consider it as

though they paid for a perfect baby and that anything less than perfect would not be acceptable (2007). Josie's parents in Ishiguro's novel pay for perfect children with high traits, but they get a child with unidentified sickness. Even Josie's sister Sal died, and Josie remains sick all the time. At the novel's beginning, when Josie meets Klara for the second time, she tells about her strange sickness: "Maybe it's because some days I'm not so well…I'm not sure what it is" (Josie, p.14).

A mitochondrial shift is also thought to be harmful to the health of future children. First, a small amount of the mother's faulty mitochondria is mistakenly transferred to the donor's cell when the mother's DNA is transferred. As the cells are destroyed, and ovocytes are produced, a tiny percentage of the faulty mitochondria may become pathogenic (Hughes, 2919, p. 9). Ferrando (2020) warns, "Genetic Engineering may have completely unexpected outcomes" (p. 132). The unusual physical appearance of the girl in the novel is that she had "thin and unusually long arms" (Klara, p. 39). Knowledge about all the functions of each gene is necessary; genes do not work in isolation; their cooperation with other genes may also lead to unpredictable results.

Josie suffers from a strange illness from the start to the end of the novel: "Once when her illness had disturbed much of her night … it is best she rests a little more" (p. 27). Klara finds her disturbed during her sleep: "I looked over to Josie and could tell from her posture and her breathing that she wasn't sleeping in her usual way" (p. 47). Secondly, Josie's illness cannot be identified because she gets this illness due to her genetic makeup chosen by her mother. Sometimes her condition is so bad that she remains in bed all the time, "She'd been warned by Dr Ryan not to resume her oblong lessons, so there came the days when she propped up on her pillows" (p. 65). Genetic modification not only enhances the traits but may lead to an undefined illness that cannot be treated through the existing knowledge because it generates due to genome editing, and each gene has its specific connection.

Digital Immortality

According to Bostrum, the transhumanism method is a key to thinking about the future that is founded on the notion that human beings in their current form are not at the end of our development but rather at a comparably early stage. Bostrum and Sandberg (2008) a transhumanist philosopher, in his paper The Fable of the Tyrant Dragon said, Death is only a form of the disease that has yet to be treated. And he believes that transhumanism is the path to immortality that we should adopt (Bostrom, 2005). According to Bostrum and Roache (2008), the path to immortality resides in five fields of technological study that have made rapid development in recent years: Molecular nanotechnology, genetics and biotechnology, virtual reality, cryonics, and uploading.

Questioning the claim of immortality necessitates consideration of the concept of death. Becker (1973) argues that death is necessary for humans to operate normally. One's fear of death cannot be present all of the time in one's mental functioning; otherwise, the body's organs and structure would cease to operate (Becker, 1973). The fondness for digital immortality can be seen in the novel *Klara and the Sun,* in Josie's mother, Chrissie. As she loses her younger daughter Sal due to a strange illness when her elder daughter becomes ill, the fear of death disturbs Chrissie. She decides to go for digital immortality by uploading Josie's personality to her portrait with the help of Klara (Josie's robotic companion). She chooses Klara for her specific quality of good observation when she is in the store, and she asks Klara, "What did you notice about the way my daughter walks?" (p. 24). She wants Klara to observe Josie so that the data collected by Klara can be used for the digital immortality of Josie.

Conclusion

The direct alteration of an organism's genes is known as genetic engineering. Humans may now alter almost any attribute of an individual, including looks and IQ. CRISPR technology works in three steps: identify, cut. But its outcomes are unpredictable; the result can be good or worse, just as in Josie and Sal's case in the novel. Both of them are lifted, but it does work for them. Sal could not survive, and Josie became sick with a strange disease. Humans can use it to cure their inherited diseases and to enhance the characteristics of their children. It is a massive advancement for humans to get rid of inherited diseases, but there is also a dark side, just like other advancements. It can free a man from inherited disease. In contrast, it generates social disorders such as genetic discrimination and social segregation, just as Rick, the unlifted child, has to face in a society in which people are addicted to utilizing genetic engineering to enhance the traits of their children to have a good time in future. Genetic engineering creates a huge competition for him to survive even though he is gifted with intelligence. It gives good life to the children of affluent people but generates a burden for those who cannot afford genetic engineering, and parents of unlifted children consider themselves responsible for this, as Rick's mother Miss Helens feels in the novel.

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