

Open Access



Technoethics in Speculative Fiction: Analyzing the Ethical Implications of Cloning and Artificial Consciousness in Matthew FitzSimmons' *Constance*

Faiqa Ahmad ¹

Abstract: *This research study focuses on the ethical dimensions of human cloning and artificial consciousness in the novel Constance by Matthew FitzSimmons, reviewing it through the technoethics framework. Embedding it in "long-range effects" presented by Hans Jonas, Karl-Otto Apel's discourse on ethical responsibility, supplemented by Vittorio Naess' ecological ethics, the study makes a comprehensive evaluation of the identity, autonomy, and the moral risks in advancing biotechnologies. The protagonist, Constance D'Arcy, a human clone who grapples with her fragmented memories, epitomizes the personal crises such technologies induce in clone-human beings. Her struggle, in the backdrop of corporate dominance of Palingenesis on cloning technologies, highlights the dilemmas of the clones about their autonomy, personhood, and social acceptance, reflecting contemporaneous dialectics revolving around the ethical integration of technological "others." The study also emphasizes the role of sci-fi in critiquing social, individual and environmental repercussions of technologies, advocating for the placement of ethical limitations and inclusivity. Although it fills the major gap in current scholarship by offering a focused analysis of the moral, social, and ecological implications of cloning for human beings, it also aims to be a suggestive study for the Pakistani literary criticism landscape, situating English fiction as a literary vehicle highlighting the moral challenges arising out of technological intervention in human affairs, workspace and relationships and specific impacts on identity and society at large for critiques.*

Key Words: Technoethics, Human Cloning, Artificial Consciousness, Ethical Frameworks in Speculative Fiction

Introduction

Critiquing literary works that present scientific and technological innovations involves exploring their historical roots, beginning with the Industrial Revolution, and examining the depiction of the social fabric within fictional worlds. As Hammond (2024) notes, "Literature, a technology, has been shaped by shifts in communications technology; literature, in turn, has shaped our understanding of the possibilities and perils of new technologies" (p. 10). This exploration raises questions about the ethics of employing various techniques and innovative devices in fictional settings that feature human beings confronting ethical dilemmas across different human dimensions. This branch of study, known as technoethics, has emerged as a new discipline for critiquing literary works.

Technoethics examines the ethical concerns arising from the integration of technology with human life, evaluating the moral, social, and legal implications (Luppicini, 2009, pp. 5-6). It provides methodologies and tools to address ethical questions beyond traditional philosophical frameworks (Bunge, 1975, pp. 71-75) and navigates the moral complexities inherent in applying technology, ensuring that progress aligns with ethical standards (Heller, 2012, pp. 14-15). These perspectives illustrate technoethics as a vital discipline for assessing speculative fiction and the ethical dilemmas its characters face. Fiction, in addressing the uncertainties of technological progress, offers a narrative framework through which society becomes aware of ontological transformations and potential risks and benefits (Roche, 2004; 1984, 1984). The intersection of ethics, technology, and speculative fiction becomes particularly compelling

¹ Visiting Lecturer, Bahria University, Islamabad, Pakistan. Email: faiqaahmad1997@gmail.com

when exploring themes like human cloning, where questions of identity, autonomy, and moral responsibility are brought to the forefront.

The novel *Constance* (2021), by American writer Matthew FitzSimmons, fits the argument presented in the introduction that the fictional narrative not only explores the technological issue of cloning but also the human issue of memory transfer, raising both personal and social implications for an individual and posing serious moral dilemmas within the arena of technoethics in literature. The storyline revolves around a woman, Constance D'Arcy, who grapples with her identity and life after being transformed into a clone, suffering from fragmented memories. This highlights the moral boundaries that new scientific advancements have crossed, placing an individual in a serious ethical dilemma with a host of questions to answer. Despite a substantial body of literary studies examining such situations, a gap exists in the analysis of the repercussions of cloning and the related ethical issues. Borrowing insights from the theoretical perspectives of Jonas (1984), responsibility in technological ethics; Apel (2001), discourse ethics and global challenges; and Naess (1990), a philosophical framework for morals and politics, this research tries to demonstrate how the storyline presents and engages with these ethical issues.

Research Methodology

This study utilizes a qualitative approach, specifically textual analysis through a triangular theoretical perspective, to analyze the ethical themes of cloning and artificial consciousness depicted in the novel. Textual analysis suits this research to examine the complex moral and philosophical questions speculative fiction generates, allowing for an in-depth analysis of the portrayal of ethical dilemmas. Therefore, interactions between characters, narrative structure, and thematic elements have been given a specific focus to unravel the ethical issues surrounding human cloning and memory transfer. The qualitative nature of this approach is essential for understanding the nuances of these ethical concerns, as it facilitates the exploration of both overt and subtle ethical conflicts (Denzin & Lincoln, 2011).

Theoretical Framework and Data Analysis

In terms of the theoretical framework, this research utilizes a triangular approach, integrating three distinct and complementary perspectives: Hans Jonas's concept of "long-range effects" (Jonas, 1984, pp. 25–28), Karl-Otto Apel's ethics of rational discourse (Apel, 1993, pp. 255–268), and Arne Naess's ecological ethics (Naess, 1990, p. 29). Whereas Jonas's (1984, p. 23) theory of long-range effects highlights the far-reaching and often irreversible consequences of technological interventions, a theme that aligns with the storyline of the novel, Apel's (1993, pp. 255–268) discourse ethics focuses on collective responsibility for the future, and Naess's (1990, p. 29) ecological ethics underscores the complex interaction between technology and environmental sustainability. Through the synthesis of these three perspectives, this theoretical framework provides a solid foundation for narrative analysis and critique.

The data sources include the novel *Constance*, the primary source and some other primary sources relevant to technoethical theoretical perspectives for analyzing the ethical issues presented in the narrative. The primary sources focus on thematic strands of ethical dilemmas surrounding cloning and human issues. Close reading involves the analysis of these thematic strands based on their ethical, social, and ecological repercussions (Braun & Clarke, 2006). Other secondary sources include academic discussions on technoethical theory and the ethical concerns of speculative fiction, which support the textual analysis. However, the scope of this study is limited to the novel *Constance*; therefore, the findings may not fully represent the broader speculative fiction landscape. Additionally, it will focus solely on the ethical dimensions of cloning and artificial consciousness, excluding other themes such as political power.

Literature Review of Theoretical Perspectives: Technoethics in Literature

Technoethics comprises various areas of study, including the ethical use of artificial intelligence, biotechnology, and digital technologies. However, in literature, technoethics explores the social consequences of technology and its usages, specifically in speculative fiction, where imaginative narratives depict both benefits as well as perils of technological progress. Speculative fiction serves as a fertile ground for examining the moral implications of emerging technologies that challenge traditional ethical



frameworks (Dusek, [2006](#), p. 42). The reason is that speculative fiction gives space for readers to engage in ethical questions arising out of the scientific and technological milieu presented in these fictional narratives.

Whereas the literature on cloning and artificial consciousness in speculative fiction is concerned, it centres on technologies involved in generating critical ethical concerns regarding identity, the autonomy of human will, and the nature of human experience. For example, Catherine Waldby ([2002](#)) examines cloning problematizes individuality and personhood (p. 305-306). Such dilemmas also emerge in Philip K. Dick's *Do Androids Dream of Electric Sheep?* (1968), where artificial human beings, such as Androids, challenge the ethical boundaries that human beings have set for them. The likelihood of the erasure of individual autonomy in these scenarios reflects serious ethical debates in biotechnology, making the novel a good vehicle for the exploration of these issues (Hayles, [2005](#), p. 145).

Some novels published in the past, such as Huxley's *Brave New World* ([1932](#)) and Margaret Atwood's *The Handmaid's Tale* (1985), also present futures in which technological and scientific innovations not only undermine the concept of human welfare but also lead to a host of moral and ethical dilemmas. These works are dystopian in nature and, therefore, illustrate the implications of a society driven by unchecked technology, lacking regulatory norms, where the potential for human agency is effectively disregarded. According to Thomas Moylan ([2000](#)), fiction serves as a vehicle for conveying "ethics and practices," creating a space for readers to question the social and moral consequences of such advances when measured against existing ethical frameworks (p. 165-168). Another novel similar to it is Kazuo Ishiguro's *Never Let Me Go* ([2005](#)), which highlights the genre's exploration of ethical boundaries through the depiction of exploitation, dehumanization, and the sacrifice of individual autonomy for broader social benefits. Further, the commodification of human life for medical and scientific achievements raises serious questions about the moral limitations of such an obsession (Ishiguro, [2005](#), p. 80). Speculative fiction, thus, shows readers to confront the likely consequences of scientific obsession, leading to a thought on the limits of human innovation and ethical responsibility. As Moylan further suggests, speculative narratives serve as a reflective medium that allows audiences to confront various personal issues such as agency, identity, and morality (p. 165).

Hence, the theoretical concept of Jonas's "long-range effects" is central to understanding the ethical issues that arise from the integration of technology into the social fabric, as he argues that its impact extends far into the future, often resulting in consequences that may be both enduring and detrimental to human life. This perspective necessitates a forward-looking ethical framework grounded in a deep sense of responsibility (Jonas, [1984](#), pp. 10-20). This concept is particularly relevant for critiquing speculative fiction, as the portrayal of technological actions often leads to profoundly unfavorable outcomes that span generations and affect the future. By emphasizing the long-term consequences of current technological milestones, *Constance* reflects Jonas's call for a more cautious and ethically responsible approach to innovation (Jonas, [1984](#), p. 66).

Apel's theoretical perspective emerges as an advocate for ethical responsibility grounded in rationality or rational discourse, guiding humanity toward moral integrity in the face of technological advancements. He argues that ethical decisions regarding technological interventions should be based on rational discourse involving the voices of those affected by these interventions, whether presently or in the past (Apel, [1993](#), p. 255). Apel believes that such collective input shapes the future of a sustainable societal fabric (p. 265-268). This perspective is mirrored in *Constance*, where characters grapple with the moral implications of artificial intelligence and consciousness, considering the repercussions for future generations.

The narrative is further reviewed through Arne Naess's ecological ethics, which asserts that technology when integrated into the social fabric, must align with ecological limits and moral values. Naess argues that "one's ethics in environmental questions are based largely on how one sees reality. If the developer could see the wholes, his ethics might change" (Naess, [1990](#), p. 66). Speculative fiction often explores these ideas, portraying future societies wrestling with the repercussions of unchecked scientific progress. Such narratives frequently depict inventors or developers as thoughtless and ethically questionable

individuals, highlighting the potential for harm when technology is pursued without consideration of its broader impact on the environment and society.

Whereas other studies of the novel are concerned, there are just online book reviews; one by Sarah Lyall in the *New York Times* calls it a thought-provoking narrative and discusses ethical considerations about corporate control of technical cloning. Lyall has also indicated the portrayal of memory and autonomy in a world dominated by a technologically driven elite having money (2021). Payne discusses social inequality and the commodification of human experience (2022), but both are very concise and do not include much detailed research about technoethics. It is also that although there is a growing body of literature and critiques in technoethics, there is a lack of critical examination of *Constance*, which presents significant ethical issues related to identity, autonomy, and ecological impact, as discussed in two short reviews. The textual analysis of the primary source provided below, based on the triangular theoretical perspective discussed above, demonstrates how the novel presents these complex dilemmas.

Textual Analysis

Technoethics and Critique of *Constance*

The narrative of the female protagonist, Constance D'Arcy, is one of regeneration through cloning, where partial revival of memories brings only a limited consciousness of her identity. Controlled by Palingenesis, a commercial cloning corporation, Constance is forced to confront her compromised independence, woven into various corporate protocols that lead her to question her existence, identity, and autonomy in a world increasingly dominated by technology. As Laleh tells her, "It'll be all right, Constance... Revival is not as seamless as they make it sound in brochures" (FitzSimmons, 2021, p. 45); Constance comes to view identity and autonomy as central to her existence—a theme that also serves as the novel's central idea. Her restructured memories and life controlled by corporate protocols reveal an unsettling reality, one that highlights the commodification of human existence stripped of ethics and how marketing allurements bait individuals into the technification of life. This technification presents ethical dilemmas for human beings who hold intrinsic value systems (Ihde, 1990, pp. 176–177). On the other hand, the commercial entity Palingenesis maintains strict control over Constance through biometric protocols, effectively making her a hostage to its commercial oversight. As Laleh warns her, "Dr Fenton is going to delete you" (FitzSimmons, 2021, p. 45), Constance is compelled to comply with the company's unethical demands and protocols at the cost of her own existence and autonomy. This predicament challenges her individual agency and will, forcing her to confront the difficult choice of whether to live under such constraints or face deletion.

Beyond issues of individual autonomy and independence, FitzSimmons's storyline also highlights environmental concerns arising from the technological progress associated with cloning. Characters in the novel become "victims of ever-tightening water regulations and taxation" amidst an expansive setup of "water collection tanks and solar panels," the brainchild of a "real estate developer" (FitzSimmons, p. 134). This subtle commentary suggests that technological and commercial intrusions into human life impact not only personal existence but also ecology and the environment, thus invoking ecological ethics. The narrative critiques the ethical consequences of manipulating both human life and natural resources in pursuit of profit and technological advancement. Hence, this fictional narrative is not only a cautionary tale of technological intrusion into human life, but it also raises questions about ethics and regulation frameworks that protect the dignity of human life and independence of individuals and environmental integrity. The novel, in a way, warns of the likely repercussions of the technological dominance that overshadows ethical frameworks, as debated below.

The Ethics of Cloning

The novel addresses the ethics surrounding the cloning industry through Constance's character, probing the limits of individual identity, personal autonomy, and the ethical issues stemming from restrictions on human rights. Constance embodies the struggle that future individuals may face as they contend with cloning advancements, where life could be compromised, and individuals might grapple with new ontological dilemmas. The intense physical and mental manipulation of an individual raises complex



ethical questions, as she expresses by saying "Yeah" and feeling like "an imposter" (FitzSimmons, 2021, p. 60). At this point, she experiences a profound inner conflict about the legitimacy of her existence and her right to self-governance. She becomes fully aware that technological intrusion has seized control not only of her memory but also of her physical being. For readers, this raises serious ethical questions about the extent of technology's influence in shaping individual identity, echoing Mark William Roche's (2004) argument on the "long-range ... effects of our actions" (p. 239), which aligns with Hans Jonas's (1984) call for an ethical framework that embraces moral responsibility (p. 10–20).

Jonas's (1984) argument about the unintended repercussions of technology is explored in *Constance* through another principle of technoethics: technological advancements can generate unforeseen consequences with profound ethical implications (Jonas, 1984, p. 10). This theme unfolds in the novel through Palingenesis, the cloning corporation that demonstrates a blatant disregard for ethical considerations and individual futures. Constance's experience illustrates how commercialization compromises human autonomy and independence—not only in thought but also in physical action. This echoes Catherine Waldby's (2002) argument in her work on bioethics, which examines how commodification threatens individual agency. Con's journey as a clone blurs the lines around physical integrity and personal identity, highlighting the ethical dilemmas around autonomy and selfhood. Through Constance's dehumanization, FitzSimmons brings attention to the broader social harms that unchecked technological interventions may cause. However, the question of dehumanization is not the point of discussion in this research, yet the novel thus suggests that the long-term ethical concerns associated with these technologies are frequently ignored in favour of immediate technical advancements, raising serious questions about the future of human dignity and integrity.

Such cloning leads to social alienation and isolation, too, as Constance repeatedly experiences, even in interactions with her mother, where she can only manage to say, "I'm not sick, I'm just..." (FitzSimmons, 2021, p. 60). Although these issues concern the psychological state of mind of the subject, they are also concerned with the ethical issues of the healthy development of an individual in a society. For example, Constance has become a technological "other," showing an example of the contemporary absence of ethical values guiding individual and social interactions. It is because her life is a constant battle of survival dominated by technical and commercial manipulation by corporate entities – Palingenesis in her case. She constantly confronts social rejection, realizing her status as an "imposter" (FitzSimmons, 2021, p. 60) — an ethical question that FitzSimmons presents for debate. Already confused and frustrated by her loss of identity, Constance encounters rejection when Kala tells her, "See? You're not her. Not really" (FitzSimmons, 2021, p. 60). She attempts to resist this rejection, asserting that she is the same person, but ultimately realizes that her cloning has resulted in social exclusion (FitzSimmons, 2021, p. 60). This rejection leads to her social alienation, as she struggles to understand her existence through fragmented memories, reflecting on her sense of being an imposter (FitzSimmons, 2021, p. 45). She feels stripped of legitimacy as an individual (FitzSimmons, 2021, p. 45), highlighting a long-term ethical conflict where identity is destabilized and autonomy is compromised due to the coercive effects of this technological void. It means that memory and consciousness are two important elements of ethical considerations, and they are important in technoethics critiques of the narrative, too, seeing that individual loses their individuality only because of the pervasive dominance of the technological intrusion into society and human life and the absence of technoethics governing the social fabric.

Memory and Consciousness in Technoethics

The existential struggle that Constance wages against controlling protocols also involves complexities of memory and consciousness transfer. These are integral aspects of the challenge that technological cloning has posed for her, as Palingenesis's manipulation leads to a profound crisis in claiming authenticity and achieving social legitimacy. Constance repeatedly reflects on her identity, asserting, "I am Constance" (FitzSimmons, 2021, p. 15, 49, 50), yet her sense of self is further undermined by Kala's harsh remark, "You're her shitty copy. You're not even a person" (FitzSimmons, 2021, p. 70). This reveals Constance's ongoing struggle to validate her existence, even among those close to her, who view her with doubt. The interplay of internal and external conflicts broadens the novel's ethical inquiry into how memory and the physical manipulation of consciousness impact identity. As Halye (2005) explains, "The conflation of life

and death, presented here as a matter of memory ('he forgets to die'), is deeply bound up with ethical complexities" (p. 140). This underscores how memory manipulation becomes a matter of life and death and results in ethical dilemmas surrounding individual subjectivity in Constance's narrative.

When technological transfer threatens human identity and authenticity, it necessitates a rational framework to analyze ethical responsibilities (Apel, 1993). Apel's argument, which suggests that ethical considerations should guide technological expansion, is rooted in humanity's long-term well-being. In Constance's case, however, the manipulation of her consciousness—celebrated as a scientific and technological achievement—comes at the cost of her very being. The forces governing her memory and consciousness are not only a personal burden but also represent a broader risk for humanity as the commodification of identity through technological obsession grows unchecked.

For Palingenesis, this becomes merely a data transfer, yet for Constance, it is a life struggle. The threat to the company's operations, as Fenton acknowledges with the fear that "a court ruling could end this business" (FitzSimmons, 2021, p. 230), indicates how commodifying human beings by controlling memory and consciousness exposes serious gaps in the current ethical framework, even though legal structures may eventually respond through the court rulings.

Another ethical concern the novel raises is the repercussion of consciousness transfer, which blurs the boundary between nature and artificiality, with serious implications for human memory. The storyline of the novel places a question mark on the existing ethical discourse, urging it to advance towards an understanding where the social fabric faces ethical threats from technological adoption by commercial entities. Constance states that when consciousness is transferred, "It would rewrite what it meant to be human" (p. 252), a shift that would be pervasive on a commercial scale and holistically threaten the social fabric. This theme also shows how individual disorientation reflects on society, seeping into its hinges and shaking its foundations. Her reflections raise questions about the lack of ethical redress for such issues or the absence of ethical restraints. Fitzsimmons thus challenges how crossing ethical boundaries could threaten not only individuals but humanity itself, driven by an obsession with technological solutions for human life.

Ecological Ethics

Ecological ethics encompass both the ecological and social dimensions of technological intrusion into human life. In *Constance*, human cloning not only affects human lives and ethics but also devastates the environment through rapid infrastructural transformations driven by high energy consumption and biological degradation. Naess (1990) argues for a balanced approach to progress, adding that the long-term impacts of integrating technological advances must be ethically prioritized, as the surrounding world prompts human beings to evaluate their value systems or ethical frameworks (pp. 20-21). As the novel illustrates the toll of cloning on the world around human beings, Constance realizes, "We were going to change the world together. I just never stopped to ask if the world wanted changing" (FitzSimmons, 2021, p. 118), even as nearly everyone was beginning to recognize the swift transition of their environment towards the next stage of human clones in the country (pp. 118-120). Beyond these issues, another issue of the world lies in rising inequalities, where the elite class can afford everything with money while the downtrodden have to live life with money. Constance notes that after the departure of her friend Kala, she took the money, taking the cue that it is "her pride or her survival" that is really at stake and survival comes first (FitzSimmons, 2021, p. 71).

The question circles back to Naess's perspective on the world around human beings, noting how technological advancements are rapidly changing society—not only making life hellish for the poor through cloning but also providing exclusive benefits for the elite through the commodification of cloning. This argument also resonates with Apel's (1993) emphasis on collective ethical responsibility, which seems absent in *Constance*. Here, "Not a single bill ever came for the vote" (FitzSimmons, 2021, p. 119), despite some U.S. states passing laws to ban the procedure (p. 119), while various other countries and unions take serious and conflicting stances without forming a united position or enacting legislation on the issue (p. 119). In essence, the novel's narrative suggests that when the commercialization of technology occurs, social divides deepen into fissures, creating a foggy maze where true logic loses its force.



The novel also presents a divide that is both ecological and social, fabricated by organizations' commercialization of interests, which disregards environmental welfare. The social fabric depicted in the novel values innovation, as shown through state approval via legislation (p. 119). However, *Palingenesis* disregards everything for its goals, as Constance realizes when her aunt states, "We are nature's greatest builders. It is what we have always done. It's what I have done. It's pure hubris to label our nature unnatural" (p. 226), highlighting the company's total disregard not only for people but also for a world increasingly distanced from natural harmony. The destruction of the natural world, alongside social discrimination and inequality, ultimately reveals a serious lack of ecological ethics and collective ethical responsibility. This absence of a solid ethical framework underscores the need for a balanced approach that respects both human dignity and environmental integrity.

Putting this analysis briefly, the novel presents ethical challenges surrounding individuality, identity, and autonomy through Constance's character, highlighting the absence of an ethical framework in the unchecked commodification of cloning. *Palingenesis* profits from this venture at the expense of human agency, memory, and consciousness, illustrating how technification undermines intrinsic human values and intensifies ethical conflicts (Ihde, 1990, p. 176). Beyond individuality, the novel frames memory loss as a form of cultural theft, further underscoring the ethical void surrounding technological exploitation. Additionally, the narrative questions ecological responsibility, as cloning impacts infrastructure, resources, and social structures, reflecting Naess's (1990) call for environmental preservation and ethical accountability (pp. 20–21). Similarly, Constance's narrative demonstrates that the disregard for holistic ethical implications degrades human ecology, raising collective concerns about the erosion of ethical values. Constance confronts not only an inner conflict but also an external one, as the commodification of life has infiltrated everything around her despite legal bans. Her social rejection leads to a sense of delegitimization and alienation, exposing another serious ethical lapse on the part of society and government—a concern Roche (2004) echoes in his arguments. Through Constance's plight, FitzSimmons warns humanity of the dangers of integrating technological advancements into human life without proper consideration of ethical values and moral frameworks. Her lost selfhood, identity, autonomy, and humanity serve as a cautionary tale about the consequences of unchecked technological dominance.

Conclusion

The study concludes by summarizing that *Constance* presents serious ethical dilemmas regarding the integration of scientific innovations into human life and ecology, affecting both society and humanity at large. The commercialization of cloning and artificial consciousness, which strips individuals of identity, autonomy, and memory, demonstrates moral, ethical, social, and ecological repercussions for individuals like Constance and the world they inhabit. Theoretical concepts such as Jonas's "long-range effects," Apel's rational discourse on ethics, and Naess's focus on ecological and social issues underscore how *Constance* allows FitzSimmons to emphasize the need to re-evaluate existing ethical frameworks in response to shifting value systems. The story serves not only as a warning but also as a reflection on the potential destruction of humanity, social cohesion, and ecology. Along with thematic strands that align with theoretical concepts, the story also raises questions about the social inequality accelerated by rapid technological innovations and the inadequate legal responses to ethical challenges that fail to meet social expectations. By presenting a future dominated by an elite class with the wealth to commodify desires and life itself, the narrative also points to the potential commercialization of human existence. Through its portrayal of these darker aspects of human life resulting from technological integration, the research contributes to literary critiques highlighting the lack of technoethics pervasive in speculative fiction—a warning of what may emerge in reality. In the context of Pakistan, this could inspire a surge of creative writing on ethical issues of the rapid technological development, inviting critical analysis of the absence of ethical codes, which may, in turn, prompt further research aimed at advancing social development and human sustainability.

References

- Apel, K.-O. (1980). *Towards a transformation of philosophy* (G. Adey & D. Frisby, Trans.). Routledge & Kegan Paul.
- Atwood, M. (1985). *The Handmaid's Tale*. Houghton Mifflin Harcourt.

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp0630a>
- Bunge, M. (1975). Towards a technoethics. *Philosophical Exchange*, 6(1), 27. Retrieved from <https://core.ac.uk/download/pdf/233574123.pdf>
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2011). *The SAGE handbook of qualitative research* (4th ed.). SAGE.
- Dick, P. K. (1968). *Do androids dream of electric sheep?* Doubleday.
- Dusek, V. (2006). *Philosophy of technology: An introduction*. Blackwell Publishing.
- FitzSimmons, M. (2021). *Constance*. Thomas & Mercer.
- Hammond, A. (Ed.). (2024). *Technology and literature*. Cambridge University Press.
- Hayles, N. K. (2005). *My mother was a computer: Digital subjects and literary texts*. University of Chicago Press.
- Heller, P. B. (2012). Technoethics: The dilemma of doing the right moral thing in technology applications. *International Journal of Technoethics (IJT)*, 15. Retrieved from IGI Global.
- Huxley, A. (1932). *Brave New World*. Chatto & Windus.
- Ihde, D. (1990). *Technology and the lifeworld: From garden to earth*. Indiana University Press.
- Ishiguro, K. (2005). *Never Let Me Go*. Alfred A. Knopf.
- Jonas, H. (1984). *The imperative of responsibility: In search of an ethics for the technological age* (H. Jonas, Trans.). University of Chicago Press.
- Luppicini, R. (2009). Technoethical inquiry: From technological systems to society. *Global Media Journal*, 2(1), 5–21. https://epe.lac-bac.gc.ca/global_media_journal/v03n01/0901/v2i1_luppicini.pdf
- Lyall, S. (2021, August 24). Review: *Constance* by Matthew FitzSimmons. *The New York Times*. <https://www.nytimes.com/2021/08/24/books/review-constance-matthew-fitzsimmons.html>
- Moylan, T. (2000). *Scraps of the untamed sky: Science fiction, utopia, dystopia*. Westview Press.
- Naess, A. (1990). *Ecology, community and lifestyle: Outline of an ecosophy*. Cambridge University Press.
- Payne, I. (2022, February 8). Sci-fi book review: *Constance* by Matthew FitzSimmons. *Signals from the Edge*. <https://signalsfromtheedge.org/sci-fi-book-review-constance-matthew-fitzsimmons>
- Roche, M. W. (2004). *Why literature matters in the 21st century*. Yale University Press.
- Waldby, C. (2002). Stem cells, tissue cultures and the production of biovalue. *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, 6(3), 305–323. <https://doi.org/10.1177/136345930200600302>